COMBINED

COMMUNICATIONS-ELECTRONICS

PUBLICATION 1

Version P35M
15 June 2005

ORGANISATION, ROLES,

POLICIES

AND

RESPONSIBILITIES

Public Page - http://www.dtic.mil/jcs/j6/cceb
Members Page - https://lad.dtic.mil/cceb

FOREWORD

Purpose. CCEB Publication 1 (Pub 1) contains the organization, roles, policies and responsibilities for the CCEB.

Authority. Pub 1 is reviewed annually and ratified by the Executive Group (EG). The EG issues this publication on behalf of the CCEB Principals. The provisions of this document shall govern the conduct of all business performed by the CCEB, subject to the respective laws and regulations of the member nations.

Amendments. Pub 1 is amended as a result of Principals decisions, when the EG determines that there is a need to amend Pub 1 between the annual Board meetings or as a result of the WS annual review process. The WS Chair will propose the amendment to the EG Chair and circulate the amendment to the nations for endorsement. Once all nations have endorsed them, the Permanent Secretary (PermSec) will incorporate and issue all amendments electronically, usually as a complete rewrite of the publication.

Effective Date. Version P35M, of Pub 1 supersedes all previous versions of the publication, and it is effective as of 15 June 2005.

Colonel AG Hatcher
Chairman, Executive Group

TABLE OF CONTENTS

CHAPTER 1 - INTRODUCTION

BACKGROUND AND HISTORY

101. The Combined Communications-Electronics Board (CCEB) is a five-nation joint military communications-electronics (C-E) organization whose mission is the co-ordination of any military C-E matter that is referred to it by a member nation. The member nations of the CCEB are Australia, Canada, New Zealand, the United Kingdom and the United States of America. The CCEB Board consists of a senior Command, Control, Communications and Computer (C4) representative from each of the member nations. The members of the board are known as the CCEB Principals.

102. The first high-level proposals for a structure to formulate combined communications-electronics policy were exchanged between the UK and US in March 1941. These proposals led to the development of the Combined Communications Board (CCB) that held its first meeting under Lord Mountbatten in Washington, D.C. on 24 July 1942. CCB membership consisted of two representatives from the United States Army, two representatives from the United States Navy, three UK representatives and one representative each from Australia, New Zealand and Canada. The CCB grew to 33 sub-committees established to consider all communication specialist areas.

103. The CCB produced all combined communications-electronics publications used by the member nations. It also produced at that time more than two million additional copies, in 12 languages, for use by CCB allies. The work of the CCB continued after the war until 14 October 1949 when it was reduced in size and commitment with the formation of NATO and dissolution of the Combined Chiefs of Staff Organization. The United Kingdom Joint Communications Staff, Washington and the United States Joint Communications-Electronics Committee continued to meet on regular basis as the US-UK Joint Communications-Electronics Committee with representatives of Australia, Canada and New Zealand attending as appropriate.

104. Canada became a full member of the organization in 1951, Australia in 1969 and New Zealand in 1972 when the organization was renamed the Combined Communications-Electronics Board. In 1986 the CCEB broadened its Terms Of Reference (TOR to include communication and information systems in support of command and control. CCEB interoperability activities have always been coordinated with those of the North Atlantic Treaty Organisation (NATO) and the US Military Communications Electronics Board (MCEB). Recently, increased attention is being given to coalition C4 interoperability and to the provision of tangible deliverables intended to maximize coalition Warfighter effectiveness. This has led to a close relationship with the seven-nation Multinational Interoperability Council (MIC). In 2001, the Vice/Deputy Chiefs of the CCEB nations agreed that the CCEB should take a leading role in facilitating coordination on C4 matters between the nations and their various single Service groups, clearly showing the high-level support that continues to be given to the CCEB in C4 interoperability coordination.

MEMBERSHIP

Background

105. From 1972, CCEB membership consisted of the five AUSCANNZUKUS nations who have been long-term traditional allies. This close membership permitted a high level of trust and cooperation in promoting interoperability and information sharing between the participating nations. The strength and effectiveness of the CCEB has largely been a result of its ability to reach consensus and achieve outcomes within a small group of like-minded nations.

106. Liaison and information sharing with other nations or relevant organizations has always been recognized as essential and has therefore been encouraged. Appropriate participation of military or contractor personnel from other nations and relevant organizations in CCEB meetings has been welcomed where there is benefit to both CCEB nations and other participants and as agreed by the Board. Notably, in recent years, a formal relationship has been established between the CCEB and the Multinational Interoperability Council (MIC). Under a Statement of Cooperation it is agreed that the MIC supports the CCEB as the lead coordinator for multinational C4 interoperability, and the CCEB supports the MIC in its role of leading the development of Joint/Combined doctrine and defining the Warfighter's C4 requirements. This relationship has lead to closer contact between the CCEB and other MIC nations (FRA, GER and ITA)

Other Limited Involvement

106. Liaison and coordination with other organizations is recognized as a key enabler for the future development and delivery of C4 capability for all nations. Attendance at CCEB meetings is normally limited to military or non- military personnel of the CCEB nations. However, application for attendance as an observer to specific meetings of interest may be made to the EG Chair, and is subject to the unanimous agreement by all CCEB member nations.

CCEB PURPOSE

107. In 2005, the CCEB Principals adopted the following purpose statement:

Enable Interoperable C4 Capabilities That Make Warfighters More Effective in Coalition Operations

STRATEGY FOR ACHIEVING THE PURPOSE

108. As the only joint or combined organization whose focus is entirely on Command, Control, Communications and Computer (C4) interoperability matters, the CCEB is

uniquely positioned to provide C4 leadership within the joint and combined environment. In exercising its leadership, the CCEB will co-ordinate and harmonize its efforts with those of the single Service fora, MIC, TTCP and NATO with regards to C4. As appropriate, the CCEB will either take the lead in issues of interest or provide expert technical support to single Service organizations. Where appropriate and when agreed, an individual CCEB country may be designated as lead nation on a particular issue. This may occur when a nation has the greatest or most pressing need to set a standard that is needed for a national project.

109. The CCEB nations recognize that interoperability within the NATO alliance is an essential operational issue for three of the member nations. Therefore, harmonization of standards, practices and procedures, where appropriate with NATO, is to be achieved to the greatest possible extent. Historically, CCEB nations have had a major positive impact on NATO's wider coalition C4 (technical) interoperability through the generation and distribution of communications procedural documents titled Allied Communications Publications (ACPs). The NATO alliance and many like minded nations have come to depend upon ACPs for their communications operations, and the CCEB has thus become a respected "communications standards" organization. Continued maintenance and generation of new ACPs in response to adoption of newer technologies by nations' militaries is a fundamental objective of CCEB and vital to its relevancy in coalition operations.

110. As the CCEB does not own infrastructure, interoperability among the member nations is achieved by setting architecture, standards and operational procedures such that the totality of the various capabilities fielded over time will act increasingly as a virtual single system. It provides a forum whereby national programs are able to achieve alignment of and interoperability of their capabilities, while recognizing that interoperability will only occur if nations use common agreed standards in their procurement programs. The CCEB Management Plan provides the road map by which the CCEB plans to undertake tasks in order to achieve future interoperability.

111. Although it will sometimes be necessary for the CCEB to develop some military standards, the CCEB will normally adopt commercial standards and products that meet military requirements. The onus on the CCEB will be first to define the various common capabilities for which agreement is needed and then to follow a process of selection, ratification and publication of associated standards and procedures. Where appropriate CCEB nations may agree to accept a national solution for a particular requirement. This may occur when there is no ready solution to an allied problem, and acceptance of a national solution by other nations will promote interoperability

112. Standards to promote coalition interoperability are articulated in the NATO NC3A Technical Architecture (TA) documentation, the AdatP-34 Volume 4. The CCEB has adopted the NATO document as its primary TA reference and all CCEB nations influence its ongoing development. When a CCEB nation or single Service fora seeks clarification, amendment or process modification to the NATO TA, the WS coordinates formal processing with NATO.

113. Normally material will be published as guidance documents to accelerate the visibility of CCEB intentions within nations and relevant organizations. Where unanimous agreement and ratification is required, or the contents have the potential to impact significantly on nations, CCEB developed material will normally be published as an ACP. CCEB work practice requires that every nation respond to all issues under consultation before a CCEB position can be formulated.

114. The CCEB shall take advantage of ongoing efforts and consider existing mature solutions, wherever they may be found. While there are immediate benefits from this approach, the full attainment of future high levels of interoperability will best be achieved through compliance with CCEB standards, practices, procedures, and extension of interoperability agreements to potential coalition partners. The development of the CCEB Coalition Networking Strategy (CNS), and the implications it may have on the resource usage amongst the CCEB nations, is an example.

RESOURCES

115. The Principals undertake to provide the resources to support the CCEB. This includes the necessary funding and personnel with the functional expertise to carry out the required duties albeit on a part time basis. The one exception is the CCEB PermSec which is a dedicated position.

116. The CCEB does not control national procurement initiatives, or mandate the use of particular standards; future equipment acquisition will be strongly influenced by the standards, policies and procedures, which the CCEB develops.

117. The CCEB Strategic and Management Plans provide details of specific tasks to be achieved, but the actual resource implications and their allocation must be planned for and provided by the participating nations and WG/TF involved. Every effort will be made to keep the resource demands to a minimum. This will be achieved by taking advantage of the work done by other bodies, which will also ensure that work is not duplicated, and by employing such techniques as asking a single nation to carry out work on behalf of the other member nations whenever it is appropriate. Nations having funded programs for specific capabilities are in the best position to dedicate some resources towards the development of the associated international standards needed for CCEB commonality.

ORGANISATION

118. The term “Board” is used to describe the collective Principals. The term “CCEB” is used to describe the organization as a whole and consists of component groupings: Principals; EG; WS; NS and WGs. Collectively, the CCEB has the responsibility for considering any military C-E matter which is referred to it by a participating nation or international organization. In practice, CCEB business concentrates on determining which aspects of interoperability are suited for CCEB

processes, and maintaining the currency of existing policies, standards and procedures in ACPs.

119. The component groupings of the CCEB are as follows:

Principals. The nominated senior C4 Representatives of the individual national joint military C-E organizations are known as "Principals." The term "Board" is used to describe the collective "Principals" The Principals influence their respective nations to further the goal of C4 interoperability and are responsible for providing the necessary national resources. The Board meets annually to review the past year and to give direction for future activities. Video teleconferences (VTC) are programmed as required to exchange information on specific issues. The Chair changes after each annual meeting in the order of Australia, Canada, the United Kingdom, New Zealand and the United States of America.

Executive Group (EG). The EG co-ordinates the development of the policy and planning, progresses combined C-E interoperability, and prioritizes and recommends allocation of resources. The EG meets formally three times a year. Under the Statement of Cooperation between the MIC and CCEB, the Executive Group Chair also chairs the Network Multinational Interoperability Working Group (MIWG) with the CCEB fully supporting the MIC Network MIWG.

Washington Staff (WS). The WS act for the Principals and the EG on matters not requiring Board or EG approval. The WS are the Washington DC based national representatives who are tasked individually in a manner determined by each nation and, to an extent determined within each nation, have national responsibility to their respective EG representative and Principal. The WS chair is agreed by the EG with the provision that the WS Chair is not from the nation that is the current Chair of Principals.

National Staff (NS). The NS is a generic term to describe those staff members in national headquarters who function, to an extent determined within each nation, to support the Principal and national EG member on CCEB business. The NS do not meet as a formed body.

Permanent Secretary (PermSec). The PermSec is the full-time CCEB staff member who co-ordinates the day to day business of the CCEB. The PermSec acts on behalf of and is tasked by the Chairs of the EG and the WS.

Working Groups (WGs). A WG is established as a standing body to consider specific on-going areas of interest. The current WGs are:

The Information Security Working Group (INFOSECWG),

The Frequency Planning Working Group (FPWG),

The Directory Services Working Group (DSWG),

The Combined Wide Area Network Working Group (CWANWG), and

The Allied Communications Publications Working Group (ACPWG).

Task Forces (TFs). CCEB TFs are normally established to address a specific short-term issue and are therefore less enduring than a WG. The current CCEB TF is:

The Messaging Task Force (Messaging TF).

The Public Key Infrastructure Task Force (PKI TF)

120. The CCEB's WGs and TFs are populated by national specialist representatives, who convene under an internationally rotating chairman, and report to and receive tasking from the EG on behalf of the Principals.

121. The EG on behalf of the Principals may direct the establishment of expert groups, in the form of a Tiger Team (TT), to address C4 interoperability issues needing immediate resolution, or to rapidly progress coordination between WGs and TFs working on inter-related timeline dependent activities.

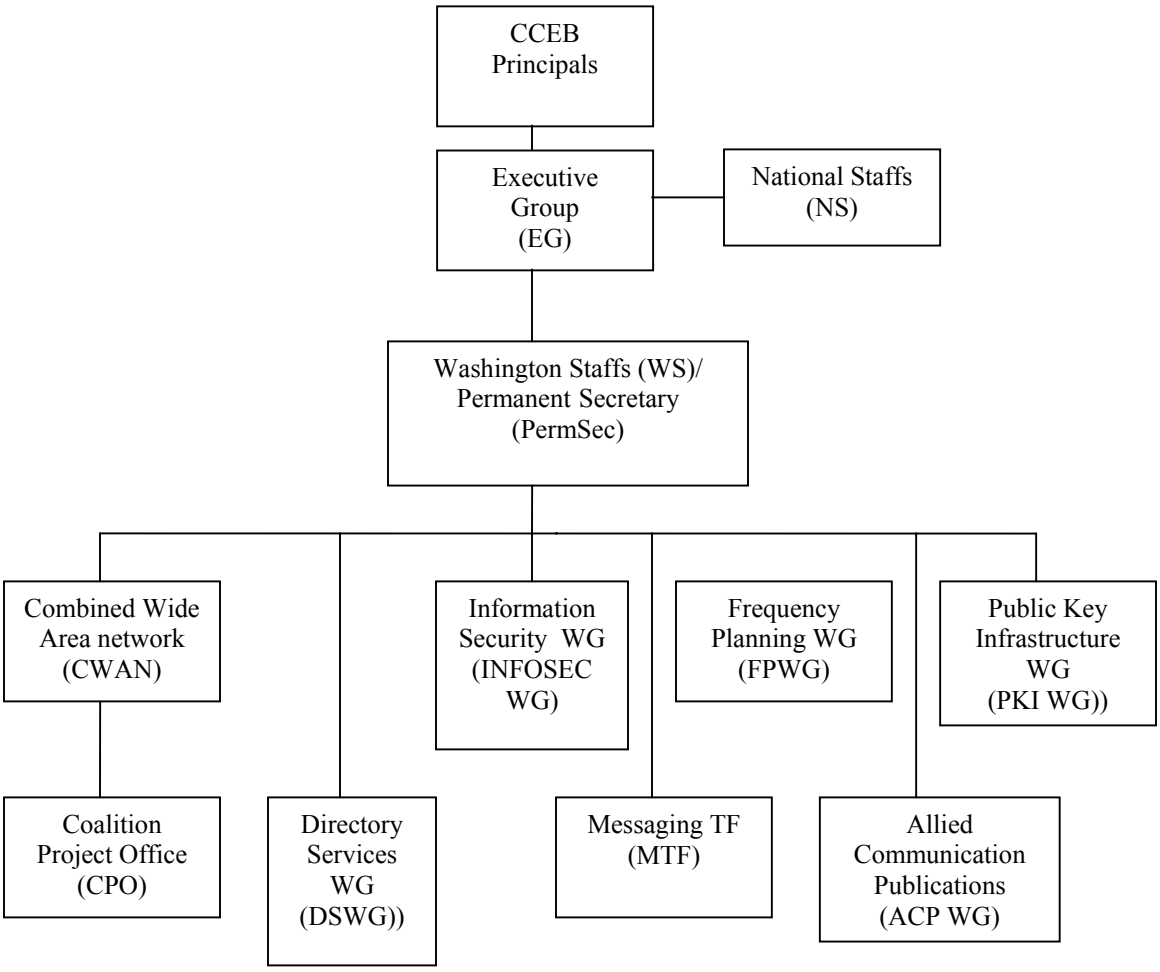
LIAISON WITH OTHER INTERNATIONAL BODIES

123. The CCEB is the organization responsible for enhancing joint interoperability of allied C4 and coordinating C4 initiatives among the multinational interoperability organizations. As such, an important role for the CCEB is to interact closely on C4 matters with multinational interoperability and standardization fora such as the MIC, NATO and other single Service and research organizations. To this end, the CCEB strongly promotes and encourages both formal and informal co-operative efforts with other organizations. Wherever possible and when invited, the CCEB will be appropriately represented and will provide presentations at other groups' plenary meetings and subordinate group meetings.

124. A key group involved in CCEB interoperability solutions is the Multi-national Security Accreditation Board (MSAB). Means to broaden and strengthen the current relationship between the organizations are currently being explored and may result in a formal Statement of Cooperation (SOC).

CCEB HEIRARCHY DIAGRAM

125. The CCEB hierarchy is shown in Figure 1 – 1. Decisions on the formation of new WGs and TFs are made by the EG.



CHAPTER 2 – KEY CCEB POLICY DOCUMENTS

GENERAL OVERVIEW

201. This chapter identifies key CCEB policy and management documents and strategies. The Principals may also wish to express their position on any issue in which they hold a professional interest, and this shall take the form of "A Statement of Opinion" (SOO). These are not limited by type or duration, and are included in this Chapter, and as such reviewed annually. Nations may further promulgate such statements in whatever manner as they see fit.

202. Document List:

CCEB Strategic Plan. This plan is the CCEB Principals' guidance for goals and objectives that are essential to achieving the organization's purpose.

Combined Communications Electronics Board and the Multinational Interoperability Council (MIC) Statement of Cooperation (SOC). This statement, agreed in Sep 2001, links the CCEB as the Lead C4 Coordinator with the MIC as the leader in coalition Warfighter doctrine and requirements.

CFBLNet Technical Arrangement. This document, signed in 2002, defines the Technical Arrangement between the CCEB, US and NATO for the Combined Federated Battle Laboratory Network to operate and conduct multinational research and development and experimentation in support of future coalition operations.

Communication Information Systems (CIS) Technical Architecture standards adopted by the CCEB nations. This Combined Agreement promulgates the CCEB nations' agreement to adopt NATO's C3[1] Technical Architecture (Allied Data Publication 34, Volume 4 – ADatP-34, and its supporting Rationale Document). ADatP-34 supersedes the CCEB's ACP 140 (Combined Interoperability Technical Architecture – CITA) and its supporting CCEB Publication 1007. The CCEB documents pre-date ADatP-34 and were harmonized with it during its development.

Multifora Statement of Cooperation. This agreement, originally dated July 1999 and subsequently updated in May 2003, articulates the desire of the ABCA Armies, AUSCANNZUKUS Navies, ASCC Air Forces, TTCP research organizations, MIC J3 communities and the CCEB to cooperate and coordinate their issues of mutual concern.

[1] NATO C3 stands for "Consultation, Command and Control".

CCEB Statement of Opinion on 'Spectrum Pricing'. This CCEB statement, agreed in June 2000, recommended that on a reciprocal basis, CCEB nations exempt operations, exercise and training activities from national charging regimes for the use of the electromagnetic spectrum.

CCEB Statement of Opinion on the Significance of Spectrum Access for Military Operations. This CCEB statement, agreed in June 2002, further emphasized the need to ensure military coalition forces are given the highest possible priority in their access of the electromagnetic spectrum for operations in the prosecution of the war on terrorism and for transformation to face the evolving security environment.

CCEB Coalition Networking Strategy Paper. The aim of this paper is to propose a strategy and supporting models for coalition networking to deliver effective, efficient and interoperable CIS in order to improve coalition information exchange.

203. The key CCEB documents included for reference in this publication are as follows:

Enclosure 1 - CCEB and MIC Statement of Cooperation

Enclosure 2 – CFBLNet Technical Arrangement

Enclosure 3 – CCEB policy on the agreed CIS technical architecture standards

Enclosure 4 – Multifora Statement of Cooperation

Enclosure 5 – Spectrum Pricing Statement of Opinion

Enclosure 6 – Significance of Spectrum Access for Military Operations

Enclosure 7 – A Strategy for Improved Coalition Networking

CHAPTER 3 – ROLES AND RESPONSIBILITIES

CCEB OVERVIEW

301. The CCEB considers any C4 matter that is referred to it by a particular nation or international organization. The following are examples of activities undertaken:

The establishment of combined operations C-E policies, doctrine, strategies, operating methods and procedures.

Initiatives to achieve interoperability of C-E systems and equipment, including policies and procedures for the development of military characteristics for such systems and equipment.

The sharing of information on C4 issues, emerging C-E trends and developments with potential implications for combined interoperability

The development of common national positions for negotiations with representatives of other nations, international agencies or regional defense organizations on C-E matters.

The establishment of combined spectrum management policy and procedures.

The development, maintenance and management of ACPs including liaison on the use of ACPs with NATO and other organizations.

The consideration of Communications-Electronics (C-E) matters of mutual interest to member nations, which are not adequately accomplished by other methods of organization.

THE PRINCIPALS

302. The Principals are senior C4 representatives from the member nations and they provide the "vision," strategic management, leadership and direction for the CCEB. The Principals champion the necessary national funding to resource the goals and objectives set out in the CCEB Strategic Plan on an annual basis. A Principal, other than the US member, represents the CCEB on the CFBLNet Senior Steering Group. This responsibility is on a 2-year rotational basis in order of UK, CA, AS and NZ, and is normally linked to the nation holding the CFBLNet CCEB EG member position.

EXECUTIVE GROUP

303. The EG is the CCEB's "executive management authority" that coordinates the development of the policy and planning needed to support the business of the CCEB and manages CCEB activities on behalf of the Board. Collectively, the EG develops and

maintains the CCEB Strategic and Management Plans, CCEB Strategies, directs and oversights subordinate groups, monitors and reports on CCEB progress, and recommends to the Principals objectives and priorities for the following year.

304. EG members are active within their own nation to encourage international harmonization of national programs and to facilitate their coordination in order to enhance combined interoperability. National EG representatives identify and allocate national resources to tasks in response to agreed CCEB goals and objectives. To an extent determined within each nation, the national EG representative also coordinates and harmonizes CCEB efforts with those of other multinational interoperability and standardization organizations, and NATO where appropriate.

305. EG responsibilities include:

a. Maintain and oversee the development, review and implications of the Strategic and, Management Plans and CCEB Strategies.

b. Validate requirements for matters raised by member nations for coordination to ensure that clear objectives and time frames for activities are established.

c. Allocate tasks, assign necessary resources, define the organizational structure and monitor outputs.

d. Report on CCEB activities, and recommend objectives and priorities for future work.

e. Coordinate CCEB activities with the other multinational interoperability and standardization organizations to ensure the most cost effective and efficient use of available resources.

f. Encourage international harmonization of national programs.

g. Appoint national coordinators responsible for the maintenance of ACPs as agreed by the CCEB.

h. Identify C4 trends and developments, which have possible implications for interoperability.

i. The Chair of the EG will also chair the MIC Network MIWG as detailed in the CCEB- MIC Statement of Cooperation. Other members of the EG form the nucleus of the MIC Network MIWG.

j. Represent the CCEB on the CFBLNet Executive Group. An EG Member other than the US member, represents the CCEB on a two year rotational basis in order of UK, CA, AS and NZ.

WASHINGTON STAFF

306. The WS has the primary role of managing the CCEB Management Plan on behalf of the Principals and the EG, and monitoring and coordinating delivery of Management Plan objectives on a day-to-day basis. This includes tasking the subordinate Working Groups and Task Forces, monitoring their progress and providing advice to them on issues for which clarification is sought from the Principals or EG. In addition, the WS will manage and facilitate a range of activities including liaison with Washington-based representatives of associated research organizations, single Service fora and other groups as required. The following are examples of activities undertaken collectively by the WS:

a. Facilitate the achievement of interoperability between member nations by the coordination, introduction and maintenance of ACPs and related documentation, and when required, the exchange of information on C-E.

b. Coordinate activity pertaining to the day-to-day management of the CCEB's tasks and raise, prepare and promulgate correspondence as required.

c. Coordinate the review, agreement, and amendment of the content of CCEB Publications, to ensure the accuracy and adequacy of published policies, procedures and guidelines.

d. Action matters raised by member nations for coordination by the WS.

e. Identify C4 trends and developments that have possible implications for interoperability.

f. Coordinate and facilitate two Collocated WG/TF meetings per year, ensuring that CCEB MP tasks are progressed in a coordinated and cooperative manner.

g. Promote cooperation/liaison with the Washington based representatives of the single Service standardization and interoperability organizations, NATO and TTCP on C-E matters of common interest.

h. Advise the EG of issues raised within the CCEB which cannot be satisfactorily addressed for reasons such as lack of accreditation to relevant agencies, national policies with regard to release of information, or the limits of CCEB resources.

i. In consultation with the Chair of the EG and the host nation NS member, develop and manage the agenda for the Principals' meeting.

j. The WS will provide continuity to the WGs and TFs. The Chair of the WS will assign a WS to be a liaison officer with each WG and TF. The degree of involvement of the WS member with the subordinate group will

be agreed between the WS member and the applicable Chairman. As a minimum, the WS member will be copied on all correspondence and attend all meetings. The assigned WS member is to be the first point of contact for the WG/TF in seeking clarification of tasks and the way ahead.

k. The PermSec will assist the EG Chair as necessary in administrative support for the MIC Network MIWG.

TERMS OF REFERENCE

307. The Principals and EG authorize the establishment and support the resource commitment for Chairmanship and meeting hosting of WGs and TFs to achieve outputs in support of the CCEB Strategic Plan. Task specific Tiger Teams (TT) may also be convened when necessary. To enable effective and efficient employment of multinational resources for the conduct of CCEB business, each WG, TF and TT is provided with Terms of Reference (TOR) ratified by the EG. As each WG, TF or TT has differing deliverables, the Chair of each group is responsible for the maintenance and attainment of approval for all TOR amendments, on a case-by-case basis. TORs are to be reviewed annually and kept aligned with changes to the CCEB Strategic Plan. Full TORs for each group are listed on each of the WG/TFs individual CCEB web pages. A number of WG or TF responsibilities are enduring or longer term activities in support of CCEB business. These responsibilities therefore form the basis of the respective groups TORs. The scope of key responsibilities for the currently established WG/s and TFs are listed below.

INFORMATION SECURITY WORKING GROUP (INFOSEC WG)

308. In accordance with direction from the EG, the INFOSEC WG shall:

a. Identify and resolve, all information security and assurance issues that impact now, or are foreseen to impact in the future, to enable the CCEB to achieve allied military information services within coalition environments;

b. Coordinate CCEB input to information assurance initiatives and harmonization activities with single Service fora, MIC and other international groups as appropriate;

c. Recommend, as required, the creation of task forces to address specific information security related technical or operational issues;

d. Maintain strong technical interest in the currency of relevant ACPs associated with Information Assurance (ACPs 120 and 122) and develop/staff necessary change proposals through the appropriate ACP sponsor;

e. Provide an interface between CCEB WG/TFs and respective national security/technical agencies for all information assurance interoperability issues raised by those groups/agencies with the view to meeting CCEB requirements;

f. Perform activities to influence respective national security/technical agencies, Multinational Security Accreditation Board (MSAB) and the International CND Coordination Working Group (ICCWG) that meet the role of the CCEB

g. Conduct annual review of the CCEB Information Assurance Strategy;

h. Identify activities that meet the requirements of the IA Strategy;

i. Implement the Crypto modernization annual update;

j. Liaise and work closely with the PKI TF to ensure synergy of outputs; and

k. Provide information assurance advice and guidance to single Service fora.

FREQUENCY PLANNING WORKING GROUP (FPWG)

309. In accordance with national and international policies, and EG direction the FPWG is to:

a. Formulate specific policy and procedures for CCEB spectrum management and planning;

b. Identify and coordinate mutual national and international military terrestrial and space spectrum requirements, policies and procedures in peace and war so as to ensure that C-E equipment, including weapons and other systems, operates successfully in all intended electromagnetic environments;

c. Identify and coordinate military spectrum access requirements so as to influence national proposals prior to International Telecommunication Union (ITU) and regional conferences as well as maintaining liaison during conferences and coordinating implementation following conferences;

d. Collect, maintain and exchange up-to-date technical and regulatory information on frequency supportability, the use of frequencies and/or bands, and spectrum dependent equipment;

e. Formulate and apply methods for coordinating frequencies and issuing spectrum plans that will meet the requirements of the CCEB nations;

f. Develop and maintain ACPs 190, 191 and 194. All FPWG ACP coordination will be done in close cooperation with the designated national sponsor for the document and within the guidelines of ACP 198; and

g. Maintain liaison with ABCA, AUSCANNZUKUS, ASIC and TTCP, and other CCEB WGs through the appropriate CCEB liaison officer so as to be aware of their activities and to provide advice regarding the availability and utilization of the radio frequency spectrum.

DIRECTORY SERVICES WORKING GROUP (DSWG)

310. In accordance with the EG direction, the Directory Services Working Group is to:

a. Review national directory services implementations and identify issues constraining interoperability, such as the supporting bearer network and security services;

b. Identify solutions that will achieve international interoperability, and influence national directory services implementations to support identified solutions;

c. Support the CWAN WG and Messaging TF to provide directory solutions;

d. Identify and promote opportunities for the incremental implementation of secure directory services within the CCEB, in particular to develop a directory services framework;

e. Develop, where necessary, common interoperability profiles and procedures to enable secure directory services between national implementations;

f. Consider and provide recommendations on interoperability testing and pilots (to include annual Coalition Warrior Interoperability Demonstrations (CWIDs), CFBL and NATO demonstrations as appropriate), that includes system boundaries and operational support issues, then develop an interoperability testing strategy;

g. Quantify costs (recurring and non-recurring) associated with the implementation of secure, interoperable directory services between nations;

h. Provide a forum to maintain and to coordinate changes to ACP 133, CCEB Pub 1008 and other relevant directory services documentation, recognizing

that NATO will propose changes that must be y given the same consideration as CCEB proposals;

i. Liaise with the CCEB WGs and TFs on issues of mutual interest to provide appropriate advice pertaining to directory services support;

j. Liaise with the NATO Directory Services Working Group on issues of mutual interest pertaining to secure, interoperable directory services, to include, but not limited to, maintenance of ACP 133, CCEB Pub 1008, and other relevant CCEB documents adopted by NATO with the view towards ensuring that the CCEB and NATO maintain a common baseline for secure, interoperable directory services; and

k. Liaise with other NATO fora, as necessary, to support a common baseline for secure, interoperable directory services amongst CCEB and NATO.

l. Liaise with the MIC as necessary etc.

CWAN WORKING GROUP (CWAN WG)

311. In accordance with EG direction, the CWAN WG shall:

a. Develop the implementation plans for introducing capabilities on Griffin including;

1) policy for the operation and maintenance of the capability,

2) technical architectures required to achieve interoperability, and

3) the security policies, practices, procedures and systems required for national accreditation and multinational agreement;

b. Coordinate implementation and maintenance of the national and multinational components of Griffin capabilities as agreed by the MIC and directed by the EG;

c. Address the issues that are relevant to improving secure interoperability between deployed operational and tactical systems;

d. Provide appropriate guidance to the Coalition Project Office as required;

e. Provide appropriate support to the MIC Network MIWG and Griffin TF;

f. Coordinate support from other CCEB WGs and TFs and liaison with other multi-national CWAN initiatives or groups; and

g. Support the other CCEB WGs and TFs in their efforts to achieve their goals and objectives such as the establishment of a CCEB Directory Service and future Military Messaging.

312. To assist the CWAN WG in the implementation and operation of Griffin capabilities, a Coalition Project Office (CPO) has been established at the request of the CCEB through the MIC Griffin Governance Policy, Jan 2003. The role of the CPO is to, on behalf of the CWAN WG, coordinate and support the activities of the National staffs in delivering Griffin capabilities and changes. The CPO is also tasked to assist in the maintenance of CCEB Griffin documentation on behalf of the member nations as well as providing a Coalition Network Operations Center (CNOC) capability for the Griffin network. In addition, the CPO is tasked to interact with National Network Operations Centers (NNOC) for the management of network operations. The CPO is hosted by the US in the Washington area and is collocated with the US DoD Advanced Information Technology Systems – Joint Project Office (AITS-JPO) in Ballston, Virginia. The CPO will be incorporated within the AITS-JPO.

ALLIED COMMUNICATIONS PUBLICATIONS WORKING GROUP (ACPWG)

313. In accordance with direction from the EG, the ACPWG shall:

a. Maintain an oversight on ACP validity and review status, reporting as required to the EG;

b. Identify those ACPs requiring updating as a CCEB priority and obtain national commitments as far as possible to complete the action;

c. Coordinate the development and production of new or updated CCEB ACPs with sponsor nations or organizations responsible for their production, and/or the NATO ACPWG (NACPWG) coordination organization where necessary, and oversee their distribution;

d. Harmonize the coordination of both CCEB and NATO ACP production and governance;

e. Submit proposals and recommendations for ACP review to the WS for incorporation into the CCEB Mgt Plan;

f. Develop and maintain ACP 198 in conjunction and cooperation with the appropriate national sponsor;

g. Oversee life cycle maintenance, content and development of the ACP web page; and

h. Revise work plans as posted on the CCEB website, following the completion of meetings.

MESSAGING TASK FORCE (MTF)

314. In accordance with the EG direction, the MTF is to:

a. Achieve allied interoperability between national military messaging environments using ACP 123 messaging standards and protocols, supported by ACP 133 directory services;

b. Achieve agreement on common security algorithm, protocols and policies for secure ACP 123 based formal military messaging between Allied nations, based on Gateway-to-Gateway (ACP 145) connectivity;

c. Maintain a strong technical interest in the currency of ACPs' 123, 133 and 145, develop and staff necessary change proposals through the appropriate national sponsors;

d. Support the CWAN WG's efforts to provide Military Messaging as a service on the CWAN.

e. Be cognizant of the NATO C3 Technical Architecture where it pertains to ACP 123-based formal military messaging; and

f. Investigate options and costs for extending future CCEB formal military messaging initiatives to all MIC nations based on a Gateway Implementation for Level III Interoperability or higher.

g. Maintain and develop a relationship between the MTF and NATO MMHS to ensure synergy and harmonization for military messaging.

PUBLIC KEY INFRASTRUCTURE TASK FORCE (PKI TF)

315. In accordance with EG direction, the PKI TF shall:

a. Identify and find resolution to, in cooperation with other international fora as appropriate, all PKI issues that impact now, or are foreseen to impact in the future, allied military information services within combined operational environments.

b. Identify or develop allied security architectures, services, protocols, policies, and procedures based around the Strategic Plan provided by the CCEB Principals to achieve optimal levels of combined interoperability.

c. Co-ordinate PKI initiatives and harmonization of activities with single Service for a, MIC and other international groups as appropriate.

d. Recommending the creation of sub-working groups to address specific technical or operational issues.

e. Maintain a strong technical interest in the currency of relevant ACPs associated with PKI. Develop necessary change proposals and staff them through the appropriate national sponsor.

f. Provide an interface between the various CCEB WGs/TFs and the respective national security/technical agencies for all PKI interoperability issues raised by those groups.

CHAPTER 4 – SUBSTRUCTURE MODUS OPERANDI

GENERAL

401. The Chair and secretarial support for the WGs and TFs are provided by the same nation, normally for a period of one year. The changeover of responsibility generally occurs in accordance with the matrix of chair/host nation responsibilities as detailed in Publication 2. In the event that WG/TF members believe its business can be better progressed by extending the tenure of the incumbent Chair or by varying the rotation of the chairmanship, it will make a suitable recommendation to the EG, who will consider and decide.

402. The WG/TF Chair is responsible for the conduct of business, including calling notices, agendas, meeting administration, record of meetings, action on papers and coordination of comment and briefs. The Chair should ensure that relevant papers are circulated in advance of each meeting so that nations have sufficient time to staff issues internally. The Chair or a delegated representative may be asked to participate in relevant agenda items of EG meetings.

403. Participants consist of appropriate national experts from the CCEB nations. While each group's work program will be approved by the EG in accordance with the CCEB Strategic and Management Plans, each group must be cognizant of the need to respond to the WS which is responsible for the day-to-day delivery and monitoring of the CCEB Management Plan. The Chair WS is to ensure there is at least one WS member appointed as an integral team member of each WG/TF.

WORKING ROUTINE

404. Working process and decision making:

The business of each WG and TF should be conducted through informal discussion and correspondence wherever possible.

Each WG and TF strives to achieve the unanimous agreement of member nations. However, in the event that this is not achievable, advice based on majority opinion may be offered, provided that it is made clear at the time that unanimity was not achieved and the essential points of disagreement are documented. Issues can/will be elevated to the EG or Principals if necessary.

WG and TF recommendations do not constitute specific commitments by member nations. However, support of a recommendation is to be considered a declaration of intention given in good faith at the time.

Decisions will be informal and non-binding until ratified or approved by the appropriate parent organizations. Actions resulting from discussions and agreements within the WGs and TFs must be formally staffed and introduced nationally, or where appropriate and relevant, in NATO, and coordinated through existing processes and procedures.

405. Meetings. WG and TF meetings are to be held in accordance with the guidelines of Publication 2.

406. Sub-Working Groups. WGs may seek to create ad-hoc sub-groups (Task Forces or Tiger Teams) from time to time to address a specific issue that demands a greater depth of expertise than that possessed by the parent body. The formation of a sub-working group is to be approved by the EG who

will, where necessary, obtain approval for resources from their nations/Principals. The sub-group Chair will be selected at the time of agreement to form the sub-group. Whenever possible, the sub-working group's meetings will coincide with the full WG's meetings.

407. Documentation and Correspondence. Documentation and correspondence is to be raised and administered in accordance with the provisions of CCEB Publication 2.

CCEB MARKETING PLAN

"To promote, demonstrate and reinforce the value of the CCEB and its products to nations, allies and coalitions"

408. The single most effective marketing activity for the CCEB is delivery of tangible benefits to the Warfighter. However, to help achieve this, there needs to be wide understanding of the CCEB's role, as well as commitment and buy-in to its Goals from across the whole of the Defence (community?)in each CCEB nation. This Marketing Plan outlines the basic activities that the CCEB will undertake to achieve this.

409. Marketing is a constant process, which should be planned each year according to perceived needs at the time. The EG is responsible for identifying marketing targets each year and for defining Tasks for delivery under the Management Plan. Marketing will therefore be an agenda item at the first EG meeting that follows the Principals' annual meeting, and as necessary at subsequent meetings. The EG will normally report against its marketing targets at each Principals' meeting.

410. A key component of "marketing" is that of education to further advertise/market CCEB values/deliverables, including Griffin and the Information Exchange MOU (CJM3IEM). CCEB members are tasked with developing an Education Strategy which increases awareness of CCEB activities and benefits, and promotes knowledge and understanding of its function.

411. It is also important that CCEB members at all levels are involved in the marketing process, as they are ones most likely to do the marketing and to get feedback on how the CCEB is perceived. An approach that is being considered is to conduct formal performance measurement of CCEB's ability to deliver interoperability outcome where key stakeholders, such as the MIC and other interoperability organizations, may be approached to provide this feedback. In setting targets, the EG will therefore consult widely within the CCEB. There are many ways in which the CCEB can market itself. The table below (Table 4 – 1) outlines the main activities that should be considered.

Activity	Aim or Outcome
CCEB Web Site	Constant development and updating. Must be set-up so that it reaches target audiences.
CCEB Briefings to other Multinational Fora and Alliances	Maximize opportunities to brief staff at all levels from other fora such as MIC, ABCA, ASIC, AUSCANNZUKUS Naval C4, TTCP, NATO Boards, MSAB, MIP, QCJWC, CFBLNet and CWID.
CCEB Briefings to Industry and Learned Institutions related to C4	Maintain awareness within industry, defence companies, research-based organizations, standards bodies, R and D institutions and other professional organizations such as AFCEA, AOC etc.
Promotion of CCEB within Nations	Briefing within each nation to key C4 decision-making organizations across defence, single-service environments, Staff Colleges, Training organizations, and Chains of Command.
Consultation and Inclusion	Where appropriate, invitations are extended to C4-related organizations to participate in CCEB meetings and activities at all levels. Obtain feedback on CCEB performance from other fora.
Activity	**Aim or Outcome**
Social Entertaining	Where possible, CCEB Staff should seek to use social occasions to build relationships with related organizations.
C4 Lead Coordinator Role	The CCEB's function as the C4 Lead Coordinator is an influential and key role that should be promoted wherever possible.
Publicity Officers	Consideration should be given to assigning Publicity Officers from within the CCEB to take forward marketing nationally and across the CCEB as a whole.
Individual Marketing	Principals, EG, WS, PermSec and all WG/TF members should actively promote the CCEB within their circles of influence.
Media (Professional or Open Source)	Consideration should be given to promoting CCEB through magazine articles such as Defence journals and related publications
Marketing Material	Examples of CCEB PowerPoint Briefs/Scripts are on the CCEB Website. Consideration should also be given to the value of CCEB pamphlets/brochures, briefing packs, and other marketing devices such as mouse mats, coins, plaques, pins etc

CCEB LESSONS LEARNED PROCESS

"What experience and history teach is this – that nations and governments have never learned anything from history, or acted upon any lessons they might have drawn from it." – GWF Hegel (1770-1831): Lectures on the Philosophy of World History

412. The Process detailed below sets out the tasks to be carried out by the CCEB in order to capture and disseminate 'Lessons Learned' from coalition operations. The aim of the Process is to ensure an agreed procedure whereby the CCEB is able to identify the lessons learned from Warfighter experience of coalition operations (and exercises), and for the CCEB to then respond by delivering solutions to the Warfighter through its normal business processes.

413. The Lessons Learned Process comprises 5 main tasks. The overall owner of the Process is the EG. Below this level, the responsibility for carrying out the individual tasks is identified and is generally the EG or WS. The Process is shown diagrammatically at Figure 4 - 2 below. The tasks, outputs, and task ownership are explained in the Table 4 - 2.

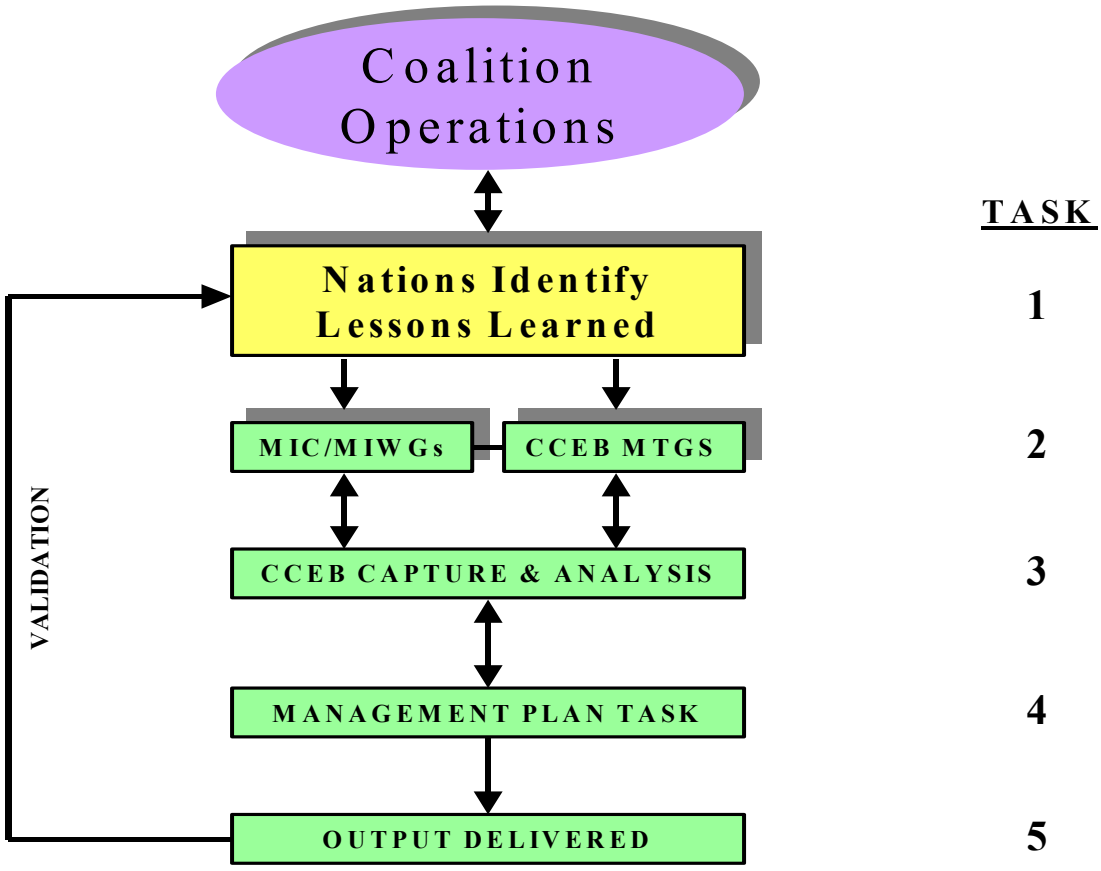


Figure 4 - 2. Management Plan Process

TABLE 4 - 2 – BREAKDOWN OF TASKS FOR LESSONS LEARNED PROCESS

Task No	Task Owner	Task	Comment	Output
1	Nations	Identify Lessons Learned from Coalition Operations	Nations that are involved in Coalition operations and exercises may identify lessons learned that have relevancy to C4. Nations should have an internal process that captures these lessons so that national CCEB and/or MIC/MIWG representatives are made aware of them.	Lessons Learned by nations involved in Coalition Ops
2	EG	Share Lessons Learned Through CCEB and MIC For a	Technical C4 related issues are shared by CCEB Principals, EG members and others during normal CCEB business processes such as EG Meetings, Principals Meetings, and also in the MIC/MIWG fora. Nations in the MIC/MIWG fora might also share J3-type lessons that have implications for technical C4. The EG participate in both MIC/MIWG and CCEB business and are therefore the most appropriate task owner. The EG should therefore ensure that Lessons Learned is a standing Agenda Item where appropriate to ensure such experience is shared.	Identified Lessons Learned relevant to the CCEB
3	EG	Capture and Analyze Lessons Learned	Once a Lesson Learned has been identified and shared, the CCEB then addresses it and decides on what action should be taken to address the issue. For example, it may decide to assign a new MP Task, amend an ACP, or set up a WG/TF. Decision-making on the response to a Lesson Learned is most likely to happen at the Principal or EG-levels.	Agreed CCEB Course of Action to Respond to Lesson Learned
4	WS	Assign and Manage CCEB Solution through CCEB Management Plan	To be effective in addressing Lessons Learned, any CCEB response will probably need to be defined and monitored as part of the CCEB MP Process. It is then the responsibility of the WS to ensure delivery of the MP Task output as part of normal CCEB business.	Manage and Deliver MP Tasks on behalf of the EG
5	EG	Deliver and Validate the Solution	Once the MP Task output is delivered, nations then incorporate and validate the solution where appropriate. This might involve changes to equipment or to tactics, techniques and procedures (TTPs), and then validation through exercises or operations. In any case, validation is continued until the Lesson Learned is satisfactorily addressed. The EG are responsible for validation within their nations and the CCEB.	A Validated Solution that meets agreed Warfighter Needs

CHAPTER 5 - RESPONSIBILITES

CHAIRMAN OF PRINCIPALS

501. Purpose. The Chair of Principals gives overall direction on CCEB matters on behalf of the Board.

502. Authority. The Chair of Principals is authorized by other members of the Board to:

Communicate directly with other Principals and when required give direction to the Chairs of the EG, WS and subordinate groups on CCEB matters.

Liaise with the Chairs of the MIC, combined single Service organizations, TTCP and NATO on CCEB issues.

Set the agenda for the annual Board meeting.

503. Accountability. The Chair of Principals is accountable to the other Board members for the progress of CCEB business during his period of office.

504. Principal Tasks.

Monitor and guide the work of the EG and the WS in implementing agreed CCEB policies, ensuring that the decisions and intent of the Board are addressed.

Initiate consultation with the other Principals on CCEB issues of an urgent nature requiring a collective Board decision.

Host the annual Principals meeting and make appropriate arrangements for the business to be discussed.

Promote the visibility of the CCEB in appropriate national and international joint/single Service interoperability forums.

Attend MIC J3 Principal's meetings in support of CCEB/MIC SOC.

Encourage Principals to influence their national C4 initiatives and projects to implement CCEB developed standards and procedures that have the potential to enhance allied interoperability.

Encourage Principals to influence their national resource managers to ensure that adequate resources are assigned to support agreed C4 interoperability activities.

Chair video teleconferences amongst the CCEB Principals throughout the year.

505. Tenure of Office. The Chair of Principals will normally be appointed for a period of 12 months culminating in the annual Principals' meeting. The table below (Table 5-1) specifies Chair and Host responsibilities.

TABLE 5-1 CHAIR AND HOST RESPONSIBILITIES

(Jun-Jul Rotation)

Meeting	Chair 05/06	Chair 06/07	Chair 07/08	Chair 08/09	Chair 09/10
PRINCIPALS	US	AU	CA	UK	NZ
CFBLNet SSG	AU	AU	NZ	NZ	UK
EG	US	AU	CA	UK	NZ
CFBL Net EG	AU	AU	NZ	NZ	UK
WS	UK	CA	NZ	AU	UK

Working/Task Force Chair Responsibility Allocation

(Mar-Feb Rotation)

FPWG	US	AU	CA	UK	NZ
DSWG	AU	NZ	UK	US	CA
INFOSEC WG	AU	CA	NZ	UK	US
CWAN WG	CA	CA/NZ	NZ	US	US/AU
ACP WG [1]	NZ	UK	UK	UK	CA
MTF	NZ	AU	CA	UK	US
PKI TF	US	UK	tbc	tbc	tbc
Collocated Meetings	Host US/NZ	Host US/UK	Host US/CA(tbc) [2]	Host US/tbc	Host US/tbc

[1] The Chair of the ACP WG is held by the CCEB PermSec

[2] It is proposed that the Feb Collocated Meeting in 2008 be conducted in the US and that the Sep Meeting in 2007 be conducted in CA

CHAIR OF THE EXECUTIVE GROUP

506. Purpose. To progress CCEB business on behalf of the Board.

507. Authority. The Chair of the EG is authorized to:

Communicate directly with the Chair of Principals on matters of CCEB interest.

Direct the Chairs of subordinate groups to complete Board tasks and associated supporting work.

Liaise with the Chair of the combined single Service organizations, TTCP and NATO on matters of CCEB interest.

508. Accountability. The Chair of the EG is responsible to the Chair of Principals for the progress of CCEB business. To this end, the Chair of the EG will provide a progress report to the Chair of Principals twice a year. One report will be made after the EG meeting that is held in the fourth quarter of the calendar year. The other report will be made to the Principals' annual meeting.

509. Principal Tasks.

Oversee the Boards tasking to the EG.

Facilitate the efforts of EG members to develop and maintain the CCEB Strategic and Management Plans ensuring their currency, content and accuracy.

Monitors and guides EG work, providing direction to the subordinate groups as required.

Promote co-ordination of activities between the CCEB and the MIC/working groups, other single Service organizations, NATO and the TTCP.

Encourage EG members to influence their national C4 programs to enhance combined interoperability.

Manage the agenda and arrangements for EG meetings.

Work with the appropriate NS member and the Chair of the WS to ensure that the preparations for the Principals' annual meeting and periodic VTCs are concluded in accordance with CCEB procedures detailed in Publication 2.

Coordinate the preparation, agreement and timely submission of an annual EG report to the Board including proposed objectives, priorities, and associated resource implications for the forthcoming year. This report will be structured in such a manner that it includes:

a review of all tasks assigned by the Principals at previous Board meetings,

all decisions made by the EG on behalf of the Principals during the past year,

major tasks, priorities and guidance assigned to subordinate bodies during he past year,

implications arising from the decisions and actions taken by the EG, and

propose future significant activities and strategic direction for the CCEB, and reports on matters referred to the EG which cannot be satisfactorily addressed or concluded for any reason.

Monitor national and international C-E trends and developments to identify issues which have potential implications for interoperability among CCEB nations, referring significant matters to the EG for discussion.

Coordinate the annual review of Pub 1 and presentation of amendments to the Principals at the annual Board meeting.

Distribute a periodic activity/Headlines report to the Principals highlighting the progress of CCEB work.

510. Tenure of Office. Rotation of chairmanship shall normally mirror the Chair of Principals.

CHAIR OF THE WASHINGTON STAFF

511. Purpose. To progress CCEB matters on behalf of the Board and EG.

512. Authority. The Chair of the WS is authorized to:

Communicate directly with the Chair of Principals, keeping the Chair of the EG informed.

Communicate directly with the Chairman of the EG.

Communicate directly with the chairmen of the subordinate groups for the day-to-day delivery and monitoring of the CCEB Management Plan.

Liaise with the Washington-based representatives of the combined single Service organizations, MIC, TTCP and NATO on CCEB business.

513. Accountability. The Chair of the WS is:

Responsible to the Chair of the EG for the progress of CCEB business in support of the CCEB Management Plan, during his appointment.

Responsible to the WS for ensuring that national views are given equal consideration and that the corporate WS position is accurately presented.

Responsible for providing a WS report to each EG meeting.

514. Tasks.

Coordinate WS activity including timely preparation, agreement, signature and promulgation of all WS Directives, Reports and Combined Agreements.

Work with the appropriate NS member and Chair of the EG to ensure that the arrangements for the Principals' annual meeting are organized in accordance with the CCEB procedures delineated in Publication 2.

Coordinate and conduct WS meetings in accordance with CCEB procedures delineated in Publication 2.

Coordinate the preparation, agreement and timely submission of WS reports to the EG including:

Routine progress reports to be submitted to each EG meeting. Reports will be structured in such a manner that they include:

a review of all tasks assigned by the EG at and after the previous EG meeting;

all significant decisions made by the WS since the last report;

significant WS activities;

a report on the status of WG and TF objectives and tasks as detailed in the CCEB Management Plan. Delays or impediments to achieving defined milestones are to be highlighted; and

major tasks, priorities and guidance assigned to subordinate bodies since the last report, and implications arising from the decisions and actions taken by the WS.

Reports in respect of any fact-finding or professional development visits made by the WS.

Reports on current and emerging interoperability issues and on matters referred to the CCEB that cannot be satisfactorily addressed or concluded for any reason.

Consult with the Chair of EG shortly after the submission of each WS report to discuss objectives and progress.

Coordinate WS representation at subordinate group meetings to monitor and when necessary provide guidance, which should enable WGs and TFs to conform to Board decisions and direction.

Coordinate the agenda and administration for Collocated WG/TF meetings. The main issues to be addressed are setting the timings, venue, and agenda (both overall and joint sessions) in cooperation with applicable WG/TF Chair and other WS members.

Coordinate liaison activities with the Washington based single Service standardization/interoperability organizations, MIC, TTCP and NATO in conjunction with the nominated liaison officers for these organizations.

Facilitate WS discussion of national and international C-E trends and developments to identify issues that have potential implications for interoperability among CCEB nations, referring significant matters to the EG as required.

Prepare and issue a CCEB Headlines report on a regular basis. An example is in CCEB Publication Two.

515. Tenure of Office. The Chair of the WS will be a member of the WS and will normally be appointed for a 12-month rotation, commencing immediately after the Principals meeting. The WS will

determine the rotation and advise the EG at its Nov meetings. The WS Chair will not normally be from the same nation as the Principals' and EG Chair.

PERMANENT SECRETARY

516. Purpose. To coordinate the day-to-day business of the CCEB and provide secretariat support to the annual Board meeting, all EG meetings and the Washington Staff.

517. Authority. The PermSec is authorized to:

Communicate directly with the Chair of the EG, the WS and the subordinate groups on current matters of interest.

Liaise directly with NS points of contact on urgent action items.

Liaise, at an appropriate level, with the combined single Service organizations, MIC, NATO and the TTCP on matters of mutual interest.

518. Accountability. The PermSec is responsible to the Chair of the EG and the Chair of the WS for the performance of principal tasks associated with the EG and the WS.

519. Tasks.

Attend and coordinate the preparation of Minutes at the Board and EG meetings.

Attend and act as Minute Secretary at WS meetings.

As directed by the Chair EG, produce draft Agendas and other documents required for the meetings of the EG. As directed by the Chair of the WS produce draft Agendas, Minutes, and other documents required for the meetings of the WS.

Prepare CCEB staff visit reports for the Chair of the WS.

Provide chairmanship of the CCEB ACPWG and provide liaison with the WS and national POCs on all aspects of ACP management.

Attend NACPWG coordinators meetings at least once annually.

Post and maintain CCEB publications on the CCEB Web Page, electronically distribute CCEB Publications and maintain a master copy of CCEB Publications.

Brief at each meeting of the WS on upcoming and current reviews of ACPs, printing and distribution of ACPs, Action Items, and any other matters as appropriate.

Manage the CCEB Home Page in accordance with the policy detailed in CCEB Publication 2.

Maintain and regularly distribute a current contact list of all CCEB participants.

Coordinate the progress of all WS items to ensure their timely completion.

Draft all cover pages for Directives, Action Officer Reports and Combined Agreements that will be signed by the Chair of the WS.

Maintain official records of all papers within the CCEB organization.

Maintain a record of CJM3IEM Annexes and issue Annex numbers as required

Review the currency of the CCEB standard brief

When deemed necessary by the Chair of the WS, attend WG and TF meetings as an observer when the meetings are held in the Washington area.

Seek out and recommend improvements to the CCEB administrative process.

As directed by the EG Chair, who also normally chairs the Network MIWG, attend and act as Minute Secretary at Network MIWG meetings.

520. Tenure of Office. The PermSec post is an international tri-Service post at Major / O4 equivalent level, with a three-year tenure. Nations will fill the appointment in rotation in the order UK, CA, AS, NZ, unless agreed otherwise. The US Military Communications-Electronics Board (MCEB) will provide office space and administrative support facilities.

WORKING GROUP OR TASK FORCE CHAIR

521. Purpose. To provide leadership to designated multinational subject matter experts or national project leaders, to progress CCEB matters on behalf of the Board and EG.

522. Authority. The Chairman of WGs and TFs are authorized to:

Communicate directly with the Chair of the EG, keeping his/her respective national EG member informed.

Communicate directly with the Chair of the WS, the appointed WS liaison member and/or other WS members, as is necessary, and the PermSec.

Communicate directly with the Chair of other CCEB groups to effect synergies with delivery and monitoring of the CCEB Management Plan tasks.

523. Accountability. The Chair of a WG or TF is:

Responsible to the Chair of the EG, and the Chair of the WS for coordination purposes, for the progress of CCEB business in support of their groups specific tasks as prescribed in the CCEB Management Plan.

Responsible for providing reports to the Chair of EG as requested. One report will normally be made after the Collocated meetings held in the third quarter of each calendar year, whilst the other will be made prior to the annual Board meeting.

Responsible to their appointed WS liaison member for the adherence to CCEB procedures and processes, to ensuring that all respective nations' views are given equal consideration and that the corporate WS position is accurately presented.

Responsible for providing the WS a report prior to each EG meeting, and forwarding the latest information to the WS Chair for inclusion in the CCEB Headlines Report.

524. Tasks.

Chair's are to schedule, arrange and lead meetings for their group members, to ensure that the prescribed tasks as listed in the CCEB Management Plan are being addressed and managed to the satisfaction of the EG. Up to two meetings per year may normally be conducted. These are usually conducted as collocated meetings as organized by the WS. EG agreement is required for additional meetings.

Prepare for the WG's/TF's participation in the Collocated Meetings which includes their meeting's agenda and coordination of joint sessions with other WGs/TFs.

Conduct meeting administration in accordance with coordination procedures prescribed in Publication 2.

Upon occurrence, report immediately to the Chair of the EG any issues impeding the continuance or completion of allocated tasks.

Maintain the currency and accuracy of WG information on the CCEB Members' website.

Conduct an annual TOR review for their WG/TF.

525. Tenure of Office. Individual nations nominate Chairs for WGs and TFs. Rotation of the appointed Chair will normally occur annually and in the sequence as laid down in Publication 2. Following this procedure provides for equity of chairmanship between the five CCEB nations.

COMBINED COMMUNICATIONS ELECTRONICS BOARD AND THE MULTINATIONAL INTEROPERABILITY COUNCIL
STATEMENT OF COOPERATION

'Cooperation embodies the coordination of all activities so as to achieve the maximum combined effort from the whole. Goodwill and the desire to cooperate are necessary at all levels within the Services, between the Services and the Government, and between Allies.

Cooperation is as essential in planning and preparation in peacetime as it is in conflict, and is greatly enhanced through the maintenance of joint and combined interoperability. It is a means of attaining concentration of combat power with prudent expenditure of effort'

An ADF Principle of War, ADFP1

The Combined Communications Electronics Board (CCEB) and the Multinational Interoperability Council (MIC) (the 'Participants'):

- **RECOGNIZING** that military operations will increasingly involve joint and combined application of the national forces and that interoperability between Allied nations is essential for the successful conduct of joint and combined military operations;

- **RECOGNIZING** that Command, Control, and Communications and Computer Systems (C4) is a vital element of military operations;

- **RECOGNIZING** that sufficient commitment and resources must be applied by nations to resolve C4 issues of concern while being cognizant that resources available to the Participants at both the national and international level are limited;

- **RECOGNIZING** that closer coordination of efforts and increased cooperation between the Participants in areas of mutual concern may lead to enhanced operational effectiveness during joint and combined operations and more effective use of limited resources;

- **DESIRING TO RECORD ARRANGEMENTS** to establish procedures and agreements for further cooperation and coordination of effort to resolve C4 issues of mutual concern to the Participants;

HAVE DECIDED AS FOLLOWS:

ARTICLE 1: ROLE OF PARTICIPANTS

1. The role or principal objective of each Participant is as follows:

   a. The Combined Communications Electronics Board (CCEB) role is to maximize the effectiveness of combined operations by the definition of a joint and combined C4 interoperability

environment, and enhance interoperability of military communications and information systems in support of command and control. Member nations are: Australia, Canada, New Zealand, the United Kingdom, and the United States.

b. The Multinational Interoperability Council (MIC) role is to provide a multinational senior level forum to address policy, doctrinal, and planning issues affecting "information interoperability" in multinational operations. The overall goal of the MIC is to provide for the exchange of relevant information across national boundaries in support of the warfighter in coalition operations. Its member nations are: Australia, Canada, France, Germany, the United Kingdom, and the United States.

ARTICLE II: AIM

2. The aim of this Statement of Cooperation is to articulate for all participants the desire and direction of the CCEB and MIC leadership for a coordinated and cooperative approach to issues of mutual interest and concern.

ARTICLE III: STATEMENT OF COOPERATION

3. We ENDORSE the Statement of Cooperation as an enduring symbol of our common desire to develop, maintain, and enhance cooperation at all levels between staff of each Participant on issues of mutual interest or concern.

4. The MIC SUPPORTS the CCEB position as a leader in developing multinational C4 systems interoperability.

5. The CCEB SUPPORTS the MIC position as a leader in developing Joint/Combined doctrine and defining the Warfighters C4 requirements.

6. We INTEND that the CCEB Executive Group Chairman will also chair the Network Multinational Interoperability Working Group (MIWG) and that the CCEB will fully support the MIC Network MIWG. When the chairmanship of the CCEB Executive Group (EG) is held by a CCEB member nation that is not a MIC member, the CCEB EG will designate the Network MIWG Chairman.

7. The CCEB INTENDS that non-CCEB members of the MIC will be invited to participate in those CCEB groups directly involved in MIC directed activities.

8. We INTEND that New Zealand is granted observer status at MIC meetings.

9. We INTEND that the CCEB will be represented and provide status updates at the MIC, MIWG, and Executive Committee meetings as required.

10. We INTEND that the MIC will be represented and provide status updates at CCEB Board, Executive Group, and Working Group meetings as required.

11. We SUPPORT the exchange of information on ongoing or proposed tasks and INTEND that the outcomes and recommendations from joint cooperative activities will be freely available for consideration and implementation if appropriate, by both Participants, whether or not they were active participants in the activity.

12. We INTEND that this Statement of Cooperation is non-binding in law.

13. We INTEND that this Statement of Cooperation will enter into effect following endorsement of and signature by the Senior Principal of each of the Participants.

For the Combined Communications Electronics Board	***For the Multinational Interoperability Council***
Signature: _____	*Signature:* _____
Name: _____	*Name:* _____
original signed by	original signed by
Title: *Chairman of Principals*	*Title:* *MIC Chairman*
Date Signed: _____	*Date Signed:* _____
Place Signed: _____	*Place Signed:* _____

CFBLNET TECHNICAL ARRANGEMENT

INTRODUCTION

1. This document defines the Technical Arrangement among the principle participants upon which the Combined Federated Battle Laboratories Network (CFBLNet) will operate and conduct its multinational research and development mission to support future coalition operations.

BACKGROUND

2. In April 1999, the US made a proposal to the NATO C3 Board to establish a Combined Federated Battle Laboratories Network (CFBLNet). The Concept was to build on the Combined Wide Area Network (CWAN) that had been established each year for JWID, to establish a year-round network for research, development, test and evaluation (RDT&E) operating at a Combined Secret Releasable accreditation level.

3. The participants would include the US, the Combined Communications-Electronics Board (CCEB), and NATO. The Network would be used to develop coalition interoperability, doctrine, procedures and protocols that can be transitioned to operational coalition networks in future contingencies. This document defines the basis upon which the CFBLNet will operate among participants.

VISION

4. The vision of the CFBLNet is to provide the infrastructure of choice for international Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) RDT&E to explore, promote, and confirm Coalition/Combined capabilities for the participants.

SCOPE

Ownership

5. The CFBLNet will leverage JWID resources and existing NATO and national laboratories and test beds. It is not a US owned network. As a combined network, the participants will have equal say in its utilization and management, yet specific initiatives may be configured between any number of participants. The CFBLNet participants are to respect sovereign and intellectual property rights of activities conducted on the network.

Command and Control

6. The CFBLNet will fall under the oversight of a CFBLNet Senior Steering Group (C-SSG), comprised of three Flag level executives representing U.S., NATO, and CCEB. Control of the CFBLNet will be conducted by a CFBLNet Executive Group (C-EG) of 06 (or equivalent) level members also representing US, NATO and CCEB, working for the C-SSG members. The C-EG may stand up subordinate groups as required.

7. The Advanced Information Technology Services-Joint Program Office (AITS-JPO) will act as the Executive Agent and network manager for the CFBLNet. As Executive Agent, the AITS-JPO will

maintain control over the day-to-day activities and the conduct of initiatives, including network requirements of participants. The AITS-JPO will maintain close liaison with all other Services and agencies, and act as scheduler for all participants conducting initiatives utilizing the CFBLNet.

RESOURCES

8. No transfer of funds is envisioned to enable CFBLNet services. Participants are to provide connection to an agreed Defense Information System Network (DISN) Point of Presence (POP). All CFBLNet participants have the responsibility of maintaining their own systems support to the CFBLNet. Initiatives will be funded by contributing participants.

CFBLNet Physical Description

9. The CFBLNet utilizes a distributed Wide Area Network (WAN) as the vehicle to conduct initiatives. This will consist of a distributed and integrated architecture of allied, joint, and Service sites. It will include the applications, analytic tools, and communication necessary to conduct deliberate RDT&E. This hardware and associated software will be located within the confines of the various battle laboratories of the participants and will have a network centric management.

SECURITY

10. The CFBLNet provides a networked environment comprising a domain(s) with information protectively marked (classified) up to and including SECRET 'Releasable to AS, CA, NZ, UK, US and NATO'. Participants will be responsible for accrediting their systems to maintain the integrity of the CFBLNet.

MISCELLANEOUS

11. Any disagreement will be resolved amicably and expeditiously by consultation or negotiation between the participants. No other remedies will be available.

12. Any participants may terminate this arrangement by providing three (3) months written notice to the other party(ies).

13. It will come into effect upon the date of last signature below:

On behalf of CCEB:
original signed by

_____

BGen J.C.S.M. Jones (date)
Brigadier General, CF
CCEB Chairman

On behalf of NATO:
original signed by

_____

Mr. H.P. Dicks (date)
General Manager NC3A

On behalf of the UNITED STATES:
original signed by

_____

Charles E. Croom (date)
Major General, USAF
Vice Director for Command, Control, Communications and Computer Systems

COMMUNICATION INFORMATION SYSTEMS (CIS) TECHNICAL ARCHITECTURE STANDARDS ADOPTED BY THE CCEB NATIONS

1. **Purpose.** This CCEB COMAG is to promulgate CCEB policy on the agreed combined interoperability technical architecture standards that have been adopted between the CCEB nations.

2. **Background**. The mission of the CCEB is 'to maximize the effectiveness of the Warfighter in joint and combined operations by optimizing information and knowledge sharing'. In support of this mission, the CCEB Principals pursued the formulation of a Combined Interoperability Technical Architecture (CITA) as a means of fostering the technical agreements, needed to promote interoperability between the Communications and Information Systems (CIS) of CCEB nations.

3. The CCEB nations recognize that interoperability within the NATO alliance is an essential operational issue for three of the member nations. Therefore, harmonization of standards, practices and procedures where appropriate with NATO are to be achieved to the greatest possible extent. In March 2001 the CCEB decided to harmonize/converge the CCEB technical architecture document set with the appropriate NATO technical architecture document.

4. During 2001, in collaboration with the NATO Consultation, Command & Control (NC3) Board's, Information Systems Sub-Committee (ISSC) (SC/5), the CCEB nations as members of the NATO Open Systems Working Group (NOSWG), converged the CCEB and NATO Technical Architectures (NC3TA Volume 4). The rationale for the selection of NCSP services and standards is detailed in the document 'Rationale for the Selection of NCSP Services and Standards', Version 1 dated 27 November 2001 (ISSC NATO Open Systems Working Group AC/322(SC/5)N/215).

5. NATO periodically refreshes NC3TA Volume 4 with contribution from CCEB nations. This collaborative approach ensures that the interests of CCEB nations are properly considered during review of the NC3TA.

6. **Policy**. The NATO Consultation, Command & Control Technical Architecture (Allied Data Publication 34 (ADatP-34) - NC3TA) Volume 4 (Version 4) - NATO Common Standards Profile (NCSP) – is the agreed combined interoperability CIS technical architecture standards that have been adopted between the CCEB nations.

(Original Signed)
M.J Gallant
Colonel,
CCEB Chairman Executive Group
Tel: +1 (613) 995-0592

MULTIFORA STATEMENT OF COOPERATION[1]

May 2003

Preamble

The following statement of cooperation between the Multinational Interoperability Council (MIC); the Combined Communications Electronics Board (CCEB); the America, Britain, Canada and Australia Armies Standardization Program (ABCA); the Air Standardization Coordinating Committee (ASCC); the Australian, Canadian, New Zealand, United Kingdom and United States of America Naval Command, Control, Communications and Computers Organization (AUSCANNZUKUS); and The Technical Cooperation Program (TTCP) has been agreed between all parties. The original agreement dated 22 July 1999 has served the purpose of fostering cooperation between some of the parties. This agreement builds on the original version to encourage wider cooperation, particularly in light of the Global War on Terrorism. The original statement is held on file by the Permanent Secretary of the CCEB.

STATEMENT OF COOPERATION BETWEEN THE MULTINATIONAL INTEROPERABILITY COUNCIL, COMBINED COMMUNICATIONS ELECTRONICS BOARD, THE ABCA ARMIES STANDARDIZATION PROGRAM, THE AIR STANDARDIZATION COORDINATING COMMITTEE, THE AUSCANNZUKUS NAVAL C4 ORGANISATION, AND THE TECHNICAL COOPERATION PROGRAM

'Cooperation embodies the coordination of all activities so as to achieve the maximum combined effort from the whole. Goodwill and the desire to cooperate are necessary at all levels within the Services, between the Services and the Government, and between Allies. Cooperation is as essential in planning and preparation in peacetime as it is in conflict, and is greatly enhanced through the maintenance of joint and combined interoperability. It is a means of attaining concentration of combat power with prudent expenditure of effort'

An ADF Principle of War, ADFP1

The Multinational Interoperability Council, the Combined Communications Electronics Board, the America, Britain, Canada and Australia Armies Standardization Program, the Air Standardization Coordinating Committee, the AUSCANNZUKUS Naval Command, Control, Communications and Computers Organization, and The Technical Cooperation Program (the 'Parties'):

- **RECOGNISING** that military operations increasingly involve joint and combined application of the national forces and that interoperability between Allied nations is essential for the successful conduct of joint and combined military operations;

- **RECOGNISING** that Command, Control, Communications, and Computer systems (C4) are a vital element of military operations;

- **NOTING** that there are C4 issues of mutual interest and concern to the Parties (all or severally), which are often addressed concurrently but in isolation;

[1] This is a copy of the original document held by CCEB.

- **NOTING** that, in response to an initiative of the US Vice Chief of the Joint Chiefs of Staff, the Vice/Deputy Chiefs of the CCEB nations agreed in early 2001 that the CCEB should take a leading role in facilitating coordination on C4 matters between the CCEB nations and the various single Service groups.

- **RECOGNISING** that sufficient commitment and resources must be applied by nations to resolve C4 issues of concern while being cognizant that resources available to the Parties at both the national and international level are limited;

- **RECOGNISING** that closer coordination of efforts and increased cooperation between the Parties in areas of mutual concern may lead to enhanced operational effectiveness during joint and combined operations and more effective use of limited resources;

- **DESIRING TO RECORD ARRANGEMENTS** to establish procedures and agreements for further cooperation and coordination of effort to resolve C4 issues of mutual concern to the Parties;

HAVE AGREED AS FOLLOWS:

ARTICLE I: ROLE OF PARTIES

1. The role or principal objective of each Party is as follows:

a. The Multinational Interoperability Council (MIC) provides an operator-led multinational forum for identifying interoperability issues and articulating actions, which will contribute to more effective coalition operations. It is the senior body for coordinating and facilitating resolution of those issues. Initially, work is focused on resolving information interoperability issues, which are considered to be key to coalition operations. Its member nations are: Australia, Canada, France, Germany, the United Kingdom and the United States.

b. The mission of ABCA is to optimize interoperability through cooperation and collaboration in the pursuit of standardization and mutual understanding in order to integrate the capabilities of the ABCA Armies. Its member nations are: Australia, Canada, the United Kingdom and the United States.

c. The principal objective of the ASCC is to ensure member nations are able to fight side-by-side as airmen in joint and combined operations. Its member nations are: Australia, Canada, New Zealand, the United Kingdom and the United States.

d. The AUSCANNZUKUS mission is to foster knowledge sharing to enhance the AUSCANNZUKUS naval Warfighters' ability to successfully complete missions across the spectrum of joint and combined operations. Its member nations are: Australia, Canada, New Zealand, the United Kingdom and the United States.

e. The CCEB purpose is to maximize the effectiveness of the Warfighter in combined operations by delivering capabilities, policies, procedures and radio spectrum that optimize information and knowledge sharing. Its member nations are: Australia, Canada, New Zealand, the United Kingdom, and the United States.

f. The aim of TTCP is to foster cooperation in the science and technology needed for defense. Cooperation includes collaborative research, sharing of data and facilities, joint trials and experiments, and advanced concept technology demonstrations. TTCP also provides a means of acquainting participating nations with each other's defense R&D programs so that each national program may be adjusted and planned in cognizance of the efforts of the other nations. Its member nations are: Australia, Canada, New Zealand, the United Kingdom and the United States

ARTICLE II: AIM

2. The Aim of this Statement of Cooperation is to articulate for all participants in the joint combined and single service organizations the desire and direction of the leadership of the organizations for a coordinated and cooperative approach to issues of mutual interest and concern to two or more of the organizations.

ARTICLE III: STATEMENT OF COOPERATION

3. We ENDORSE this Statement of Cooperation as an enduring symbol of our common desire to develop, maintain and enhance cooperation at all levels between staff of each Party on issues of mutual interest or concern.

4. ABCA, ASCC, AUSCANNZUKUS, CCEB and TTCP SUPPORT the MIC position as a leader in developing Joint, Combined doctrine and defining the Warfighters C4 requirements.

5. The MIC, ABCA, ASCC, AUSCANNZUKUS and TTCP SUPPORT the CCEB position as a leader in developing multinational C4 systems interoperability.

6. We ENDORSE the conduct of joint activities of mutual benefit to two or more organizations. To this end, we NOTE and ENDORSE the establishment of joint and combined working parties where this is practical and cost effective.

7. We ENCOURAGE coordination of effort to enhance allied interoperability which may reduce unnecessary duplication or nugatory effort on issues of common interest. To this end we encourage the exchange of details of meeting schedules and agendas and encourage representation by other fora when possible.

8. We NOTE and SUPPORT the establishment of regular Multi-fora Meetings of the Washington-based representatives of the Parties to further coordination efforts and to develop and agree an equitable sharing of effort and resources on cooperative activities. These "Multi-Fora coordination meetings" are to occur at least twice annually and will be chaired in rotation amongst the Parties. Meeting reports are to be distributed by the members to their respective national representatives.

9. We AGREE that participation in joint activities is voluntary and that recommendations from joint activities will be available for consideration and implementation if appropriate within the individual organizations.

10. We SUPPORT the exchange of information on ongoing or proposed tasks and AGREE that the outcomes and recommendations from joint cooperative activities will be freely available for consideration, and implementation if appropriate, by all organizations, whether or not they were active participants in the activity.

11. We AGREE that this Statement of Cooperation is non-binding in law.

12. We AGREE that this Statement of Cooperation will enter into force following endorsement of and signature by the designated Representative of each of the Parties. It will remain in force with the mutual agreement of the Parties.

IN WITNESS WHEREOF the undersigned, duly authorized thereto by their respective Commanders, have signed this agreement on the following dates and places:

For the ABCA Armies Standardization Program

Signature:

Name: P. Barry, Colonel UK AR

Title: Chief of Staff, ABCA Program Office

Date Signed: 15th July 2003

Place Signed: Rosslyn, VA

For The Technical Cooperation Program

Signature: William Berry

Name: William Berry, US Civ

Title: TTCP Washington Deputy Representative

Date Signed: 15 July 2005

Place Signed: Washington, DC, USA

For the Air Standardization Coordinating Committee

Signature:

Name: P.A. Wade, WGCDR, RAAF

Title: Chairman, ASCC Management Committee

Date Signed: 5 Aug 03

Place Signed: Rosslyn, VA, USA

For the Combined Communications Electronics Board

Signature:

Name: S. Shadbolt, Colonel UK RM

Title: Chairman CCEB Executive Group

Date Signed: 5 August 2003

Place Signed: London, UK

For the AUSCANNZUKUS Naval C4 Supervisory Board

Signature: [ ]

Name: L. Kubow, Colonel US MC

Title: OPNAV N610

Date Signed: 27 MAY 03

Place Signed: Washington, DC

For the Multinational Interoperability Council

Signature: Douglas W. Owens

Name: D. Owens, Colonel US AF

Title: Chairman MIC Capstone MIWG
U.S. Joint Staff, Assistant Deputy Director for Global Operations, J-3

Date Signed: 26 Sep 03

Place Signed: Pentagon
Washington D.C.

SPECTRUM PRICING STATEMENT OF OPINION

Approved by the Principals at P30M

Introduction. Spectrum has been recognized as a significant source of potential revenue by governments. One ramification of this is the practice of nations charging for use of the spectrum by visiting military forces. This may result in undesirable consequences on the conduct of military operations, exercises and training, or on the activities of CCEB forces operating in another CCEB nation. It may also impact on support for operations other than war, including support of government operations (GO) and non-government operations (NGO) in direct support of military or government activities of CCEB nations.
This Statement describes the potential impact on military operational readiness resulting from spectrum cost and articulates the preferred position of the CCEB Principals regarding payment for spectrum used by CCEB military forces, and other authorized operations, within another CCEB nation.

This Statement has been agreed by the CCEB Principals and may be used to suggest points to include in national representations to government authorities who may be considering charging for the use of spectrum by visiting and guest military forces.

Discussion. Generally, countries do not have sufficient spectrum permanently assigned to their military forces to provide for the conduct of military operations, large-scale military exercises and training. Instead, when an event is conducted, sufficient additional spectrum is acquired for the requirement. This is the case whether or not the event is purely domestic or involves visiting or guest forces.

The concept of charging visiting forces for the use of radio frequency spectrum in order to conduct any type of military operation, exercise or training may endanger strategic cooperation and may compromise operational, exercise and training effectiveness. Although the prospect of receiving revenue for spectrum use for this kind of activity may
be initially attractive, the CCEB believes there are numerous unintended negative consequences.

Of greatest concern is that the act of charging for spectrum use by allied military organizations, which are not themselves commercial revenue producing enterprises, may detract from the spirit of cooperation and continued efforts to achieve interoperability among friendly nations who may be called upon to engage in mutual defense or work together in a coalition operation anywhere in the world. As defense budgets are being reduced by significant amounts in every nation, the eventual, inevitable result of paying for spectrum use may well be a much-reduced scale of international training activity. This in turn will lessen the readiness and ability of our military forces to operate together.

Recommendation. While recognizing that charging for the use of spectrum is within national responsibility, it is recommended that the costs for spectrum needed to support the following activities be exempt from national charging regimes on the basis of reciprocity between the CCEB nations:

- Military operations, exercises and training by visiting and guest forces,

Government Operations (GO), and
Non-Government Operations (NGO) in direct support of military or government operations of the CCEB member nations.

- Such arrangements may be extended both to forces visiting for a temporary period, such as during operations, training or exercises, and also to guest forces remaining for an indefinite period of time.
- In the case that national legislation demands charging for the use of spectrum, those fees that originate from visiting or guest CCEB forces should be dealt with by the host nation.

SIGNIFICANCE OF SPECTRUM ACCESS FOR MILITARY OPERATIONS

Approved by the Principals at P32M, ***revised P33M, Jun 03***

1. Today, as the world adjusts to the realities of the new millennium and ***engages in a Global*** War on Terrorism ***(GWOT)***, there is a clear recognition that operations within the information domain are just as important as those conducted at sea, on land or in the air and space. Achieving information dominance, here referred to as the networking of sensors, weapons systems, ***informational databases*** and decision makers, is critical to successful prosecution of a military campaign. Adequate access to radio frequency spectrum provides warfighters the full range of military capabilities for operations and training.

2. Commercial wireless technological advances and subsequent economic opportunity present significant challenges to our ability to maintain critical access to the radio frequency spectrum for training and operations. While we recognize the enormous economic potential of spectrum auctions, reallocations and band sharing we realize the impact ***of these*** on our military operations and must make prudent decisions to ensure national security and public safety concerns are protected. Loss of access to essential radio frequency spectrum may require the unplanned early retirement of whole communications or weapons systems or require existing equipment to transition to other frequencies potentially impacting on readiness, reducing combat effectiveness or causing expensive unprogrammed systems replacement or modification.

3. Warfighter radio frequency spectrum requirements continue to grow as new systems are developed and deployed. With recent trends towards numerical reduction in the size of armed forces, it becomes increasingly necessary to use technological advances to maintain the superiority of these smaller forces – and this inevitably requires use of equipment that makes use of the radio frequency spectrum. Our success ***in the battlespace*** largely depends on our ability to use this equipment to address vital information exchange requirements necessary to effect timely decision-making, ***increase situation awareness*** and ***enable precision*** engagement, resulting in effectiveness, accuracy, protection and supremacy of our forces. ***Recent changes in doctrine which reflect a shift towards network centric / enabled warfare further emphasize the need for access to the radio spectrum.*** Adequate national frequency access is key to training effectively with our coalition partners and subsequently our coalition warfighter preparedness. Spectrum access planning must therefore support national needs, those of visiting Allies, and be co-coordinated among coalition partners and the host nation.

4. Military dependence on information dominance is paramount in any situation from national based training to peacekeeping and humanitarian operations anywhere in the world. That same information dominance is, and will become, increasingly dependent on adequate worldwide access to radio frequency spectrum. It is imperative that we strike a reasonable and informed balance between commercial economic opportunity and military requirements necessary to support national strategies, goals and interests.

5. As we seek to transform our forces to face an evolving security environment, our goals remain firm. We must protect the interests of the free world, deter aggression, support peaceful resolution of disputes and most importantly, be ready to intervene or respond to a conflict and win. Our coalition forces must be trained and ready to respond on a moment's notice. Adequate radio frequency spectrum access is paramount in this endeavor.

On behalf of **AUSTRALIA**:

_____ [original signed by]
Rear Admiral Peter Clarke, RAN
Head Knowledge Systems

On behalf of **CANADA**:

_____ [original signed by]
Brigadier General Michel Jones
Director General Information Management
Strategic Direction

On behalf of **NEW ZEALAND**:

_____ [original signed by]
Colonel James Thomson
Director Joint Command, Control,
Communications and Information Systems

On behalf of the **UNITED KINGDOM**:

_____ [original signed by]
Major General Robert Fulton
Capability Manager (Information
Superiority)

On behalf of the **UNITED STATES**:

_____ [original signed by]
Lieutenant General Joseph Kellogg, Jr.
Director Command, Control, Communications, and Computer Systems (J6)

EXECUTIVE SUMMARY

A STRATEGY FOR IMPROVED COALITION NETWORKING

INTRODUCTION

1. The ability of nations to participate successfully in multinational (MN) operations is critically dependent on being able to seamlessly exchange and share information. Increasingly this is done by means of operational coalition wide area networks that provide a rich set of collaboration and planning applications and information sharing capabilities. Over the past several years, nations either independently or in collaboration have developed information exchange networks to support the planning and conduct of coalition operations at both the operational-tactical and strategic–operational levels of command. These are, however, exclusively non-interoperable and there is an urgent operational and financial need to foster rationalisation and interoperability

AIM

2. This paper will propose a strategy and supporting models for coalition networking that will provide improved information exchange between coalition partners all levels by providing guidance for the development and where practical, convergence of MN networks.

END STATE

3. The desired End State is a single coalition domain supporting information exchange requirements at different security classification and releasibility levels between different coalition partners and communities at all levels of command. But the desired End State cannot be achieved until Multi-Level Security (MLS) solutions are developed for the full range of services to be provided. The likely achievable End State will involve a Two Tier model. At Tier 1 allied nations will exchange information between permanently inter-connected national classified C2 systems over multiple security domains. At Tier 2, information sharing at all command levels within a coalition or with nations without national C2 systems will be by means of standalone networks and systems. In order to meet this desired End State, the single coalition domain should exhibit the following characteristics:

- Provide seamless integration through the exchange of information between national C2 systems of coalition nations.
- Provide selected coalition services inherent on national C2 systems.
- Utilize the necessary guards to reduce the threat to national C2 systems.
- As the technology becomes available, utilize multi-level security to permit information flow to various security domains.
- Provide the necessary reliability to ensure mission accomplishment.
- In the event of systems failures, provide technical implementation that supports graceful degradation of service

MULTINATIONAL INFORMATION SHARING ISSUES

4. Domains. Domains consisting different communities of interest are identified as:

- National Domains. National Domains enable the internal sharing of information using nationally provided and managed network infrastructure, applications and services.

- Allied Domains. Allied bilateral or MN domains are formed from the permanent interconnection of national domains. They do not need a specific coalition operation to be formed, and they enable the permanent and protected environment for the sharing of classified or sensitive information. The Griffin capability is an example of an allied domain.

- Coalition Domains. Coalition Domains are formed using (often stand-alone) networks and applications between coalition partners. A separate domain may be created for each operation or for a specific purpose. CENTRIXS is an example of a Coalition domain.

5. Functional Requirements. The MIC has identified functional requirements and priorities for information sharing at the strategic-operational levels of command. User requirements for coalition information sharing are usually identified and provided by the Lead Nation[2]

6. Architecture. Effective and coherent design, development and management of MN networks is vital to improving information exchange. An architectural approach, based on the US DoD Architecture Framework (DoDAF), will guide the implementation of complementary, integrated and interoperable MN networks. This approach will guide further development, improve the effectiveness and efficiency of current capabilities, and increase commonality and enable reuse of design.

7. Tactical Networking Initiatives. Tactical networks enable direct information exchange between mobile elements without 'reaching back' through their national strategic networks. Ongoing work on tactical networking by Single Service Fora and other MN complement this strategy.

8. Information Management and Data Modelling. There are currently no MN-agreed information management or data standardisation/modelling standards. Resilient and responsive information repositories, capable of being accessed through both fixed and deployed CIS to support the assembly, processing and transformation of information is required. Multilateral Interoperability Program (MIP) is leading MN efforts on developing data models and data exchange mechanisms.

TIERED CONCEPT

9. The Two-Tier model provides the framework to rationalise and evolve current capabilities and guide future network development.

10. **Tier 1** capabilities are those with Boundary Protection Service (BPS) that allow connection to national C2 systems. **Tier 2** capabilities are those that do not have BPS solutions

[2] MIC Coalition Building Guide

and therefore need a stand-alone infrastructure. The availability of BPS solutions and associated security accreditation will govern the direction and timescales for achieving the End State

MIGRATION STRATEGY

11. As new BPS solutions allow more services and capability to be transferred to Tier-1 and where the required utility and reach is available, the need for Tier-2 capabilities will be reduced. There will be network convergence and elimination of duplicated network capabilities can be achieved.

FUNDING MODELS

12. A range of funding options for the provision and support of MN networks have been identified. Funding may be the responsibility of a Lead Nation, or may be shared between participating nations using a pre-agreed model. The selection of an appropriate option will be determined by the circumstances.

WAY AHEAD

13. The adoption of this Strategy and the Two-Tier model will provide a framework for the development, evolution, management, support and resourcing of existing and future Multinational Information Sharing capabilities in a coordinated, focused and planned manner.

14. Future coalition networking solutions must address design, technology, support and management aspects to ensure the deployment of an effective capability. Nations will need to scope the level of effort required and resource these requirements through appropriate national programs and agreed cost sharing models. The CCEB, as the recognised body for coordinating C4 issues, will coordinate the development, consolidation and evolution of coalition networking solutions.

CONCLUSION

15. The desired solution for allied and coalition information exchange and collaborative planning is between national C2 systems, with the integrity of national information being maintained by BPS. Until the necessary MLS solutions are developed, this End State is not achievable and the Two-Tier model provides a model to develop capabilities and evolve current and future networks.

16. Tier 1 capabilities are those with BPS solutions that can be connected to national C2 systems. Tier 2 capabilities are those that do not have BPS solutions and require standalone coalition infrastructure. The Two-Tier model allows for the rationalization, convergence or migration of current information exchange capabilities. The availability of BPS solutions and associated security accreditation will govern the direction and timescales for achieving the End State.

17. Requirements for new capabilities to support operational planning and conduct of operations have been agreed and prioritized through the MIC. The implementation of coalition networks based on this Strategy, combined with allocation of appropriate resources from each nation, will assure the success of information sharing in any type of operation.

A STRATEGY
FOR
IMPROVED COALITION NETWORKING

INTRODUCTION

1. Modern military operations increasingly involve two or more nations acting in a Coalition to achieve a political objective. The ability of nations to participate successfully in multinational (MN) operations is critically dependent on being able to seamlessly exchange and share information electronically with other participating nations. This capability is dependent on mutually agreed standards, procedures, interoperable equipment/systems, harmonised doctrine, training and development mechanisms.

2. Over the past several years, nations either independently or in collaboration have developed information exchange networks to support the planning and conduct of coalition operations. Some capabilities have been developed by a single (Lead) nation to meet immediate warfighter requirements in emerging crisis situations, or to meet regional/theatre information exchange needs. These networks have been primarily focused at the operational and tactical levels of warfighting; the US-sponsored CENTRIXS suite of networks is one such capability. Other capabilities have been more deliberately planned and rigorously accredited, with MN collaboration to meet needs of warfighters at the strategic and operational levels of command; an example of this type of capability is the multinationally-developed and supported "Griffin " which enables information exchange between national classified C2 systems.

3. The Multinational Interoperability Council (MIC)[3] determined that a coalition wide area network (CWAN) capability was to be established as a permanent information-sharing environment for collaborative planning activities and the conduct of operations between participating nations' strategic, operational and tactical level headquarters. A key driver for the CWAN was that users would primarily exchange information across the CWAN by using their existing national C2 workstations. The original information sharing vision for the CWAN was:

"The CWAN, when fully implemented, will provide an apparently seamless and robust network capable of exchanging, and sharing information that is operationally relevant to all coalition partners involved in multinational operations"[4].

4. The Combined Communications Electronics Board (CCEB)[5] directed that a strategy should be developed to guide the future development and, where practical, convergence of coalition capabilities and rationalisation of infrastructure. A more coherent approach to coalition networking will assist in the efficient management of current and the development of future Communications and Information Systems (CIS) capabilities.

5. This strategy provides a model for both permanent, accredited and robust information exchange capabilities between national classified C2 capabilities at the strategic and operational

[3] MIC Meeting in October 1999. The MIC is composed of senior operations, doctrine, and C4I officials from AS, CA, FR, GE, UK and US. It's purpose is to provide a multinational forum for identifying interoperability issues and articulating actions, which if nationally implemented, would contribute to more effective coalition operations

[4] MIC CWAN CONOPS – CWAN Vision

[5] CCEB Meeting in June 2003. The CCEB is composed of senior J6 officers from AS, CA, NZ, UK and US. Its purpose is to optimize information sharing by delivering capabilities, policies and procedures in order to maximize the effectiveness of the warfighter in coalition operations.

levels. It also guides the timely establishment of networks with richer applications to meet immediate needs at the operational and tactical levels between non-traditional coalition partners, or where necessary security protection is not available. It will build upon existing and future initiatives and will provide a framework to guide the design, management, support and operation of coalition networking capabilities. Adoption of this strategy should enhance warfighters' information sharing abilities across all levels of command, and result in the more effective use and efficient support of coalition networking.

6. In this strategy, coalition networking refers to the spectrum of MN information sharing capabilities. It includes not only to the physical infrastructure that provides the transport and protection of information, but also the applications and services that enable a user to share information with coalition partners.

AIM

7. The aim of this paper is to propose a strategy and supporting models for coalition networking to deliver effective, efficient and interoperable capabilities in order to improve information exchange.

END STATE

8. The desired End State is a net-centric environment supporting the requirements for exchange of information at different security classification and releasibility levels between different nations and communities of interest at all levels of command available to users at their national C2 workstation. In order to meet this desired End State, the single coalition domain should exhibit the following characteristics:

- Provide seamless integration through the exchange of information between national C2 systems of coalition nations. Operators working on their national C2 system should be provided a high level of assurance that they can effectively communicate with Coalition Partners working on their own national C2 system.

- Provide selected coalition services inherent on national C2 systems. The services provided on any coalition network such as CHAT and WEB must mimic whenever possible those found on national systems in order to reduce operator-training time and provide a similar look and feel.

- Utilize the necessary guards to reduce the threat to national C2 systems. Nations must be confident that when their national C2 system is connected to the coalition network, they remain safe from either malicious or unintentional network attack.

- As the technology becomes available, utilize multi-level security to permit information flow to various security domains. There is an increasing need to move authorized information between security domains.

- Provide the necessary reliability to ensure mission accomplishment. It is essential that the operational community has the full trust and confidence in their coalition network or else they were cease to use it.

- In the event of systems failures, provide technical implementation that supports graceful degradation of service. When operating a coalition network in a hostile environment, contingency plans must be developed in the event of systems failure. Single points of failure, even in the rear echelon operating area, must be eliminated. A coalition network must be able to sustain system failures and continue to operate in some diminished capacity.

SCOPE

9 The paper will propose a strategy for improved coalition networking. It will:

- Confirm the high level requirement statement for CWAN as specified by the MIC;
- Propose architecture and technology capabilities that support the requirements;
- Identify priorities and sequencing for information exchange services;
- Propose prioritization and capability costs to meet the requirements;
- Outline opportunities for network convergence and eliminate duplication of services as MN networking capabilities develop; and
- Propose a model for resource sharing.

10. Regrettably, the desired End State cannot yet be achieved. Until Multi-Level Security (MLS) solutions are developed, the realistic and achievable End State is the exchange of information between national classified systems using multiple, cryptographically-separated domains to connect different nations and communities of interest. However, some coalitions will consist of technologically-disparate nations and may include some who do not have national C2 systems, or there may be a reluctance by a nation to connect a potential coalition partner to their national classified C2 system. Because of this, there will always be a requirement for additional coalition networks. These will be complementary to the more permanent information exchange capabilities and they form an integral part of this coalition networking strategy.

DOMAINS

11. Coalition operations involve different domains within which there are communities of interest. The domains are:

- National Domain. The internal sharing of information is assumed to be seamless where proven technology allows full information exchange. The national domain uses the nationally provided and managed network infrastructure, applications and services. National classified C2 systems reside in the national domain. The reach of the national domain into the tactical/mobile/deployed environment is determined by each nation, and will affect the reach of MN information exchange that uses national systems and infrastructure.
- Allied Domains. These do not need a specific coalition operation to be formed, rather they require a permanent and protected environment for the sharing of classified or sensitive information. Bilateral domains offer the richest exchange of information between nations

based on firm trust and mutual understanding, facilitated by common standards and proven technology shared between two nations. Griffin provides the means for information exchange between National Domains.

- Coalition Domains. Wider coalitions require robust but flexible C2. The MIC Coalition Building Guide calls for a Lead-Nation to provide a mechanism for the exchange of information between the coalition partners[6]. A separate domain may be created for each operation so that a coalition can work together, ideally, at all levels of command and at the necessary security level. Coalition domains are established for a specific operation or purpose and will include non-traditional partners. CENTRIXS provides the means for information exchange within a Coalition Domain.

MIC FUNCTIONAL REQUIREMENTS

12. Figure 1 provides an overview of the original MIC functional requirements.[7]

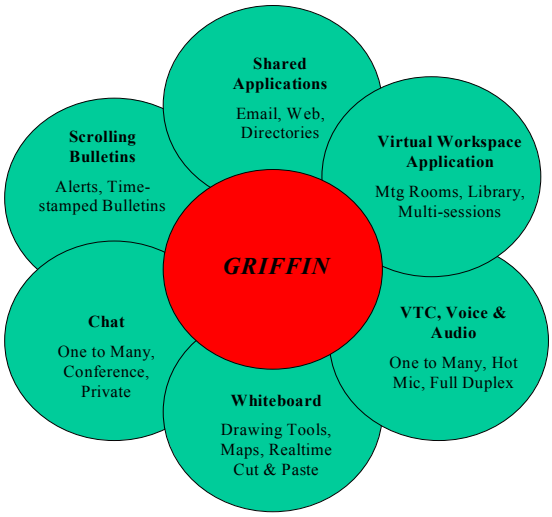


Figure 1. MIC Functional Requirements

13. Griffin capabilities have been developed to deliver MIC-defined functional requirements. The initial capability delivered on Griffin [8] is SECRET e-mail plus approved attachments between the CCEB nations. Additional applications including Enhanced Directory Services and a basic Web Browsing capability will be progressively introduced. While this will permit CCEB nations

[6] MIC Coalition Building Guide Executive Summary – "The Lead Nation will coordinate for, create, or provide communications and information management structures. The coalition partners must be brought into the planning process early and interact continuously to anticipate and solve problems likely to arise from a lack of compatibility among partners' organic command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) equipment".

[7] Multinational Combined Wide Area Network (CWAN), Concept of Operations (CONOPS), December 11, 2001

[8] To take Griffin forward as a Richer, Deeper and Wider capability. **Richer** – increasing suite of applications such as Web Browsing, Directory Services, Messaging, File Transfer and Coalition Planning Tools; **Deeper** – increasing Reach to tactical level and includes legacy system and 'Reachback'; **Wider** – connection to more nations, and establishment of permanent and ad hoc domains.

to conduct limited campaign planning between strategic and fixed operational headquarters, it will not immediately provide a full suite of collaborative planning tools and applications due to current security and accreditation constraints.

14. Coalition domains will always be required because of these constraints in exchanging information across national boundaries. These networks, which are not connected to National domains, are usually provided by the Lead Nation[9] in an operation and they provide the user with richer applications and reach into the operational and tactical environment.

DRIVERS FOR COALITION NETWORKING INTEROPERABILITY

Political

15. When committing forces MIC and CCEB nations need to operate within an agreed political coalition framework with a high degree of interoperability, trust and confidence. Governments will determine the composition of Coalition Joint Task Forces (CJTF), and other non-traditional partners may be included in the coalition. Therefore, flexible and adaptive CIS solutions must be provided to enable information exchange within a variety of traditional and ad hoc coalitions.

Operational

16. Network Centric Warfare (NCW) supports highly reactive CJTFs through smaller and more agile mission groups. The emerging lessons identified from Operation IRAQI FREEDOM highlighted the need for resilient and interoperable CIS to support campaign planning, mission rehearsal and the conduct of coalition operations. Commanders will have differing information requirements across the various levels of command and will require near-real time and real time information. Regardless of the specific operation, Coalition partners need to share information in a seamless, coherent and timely manner.

Financial

17. Responsibility for the establishment, management and support for permanent and ad hoc capabilities will be a significant driver in implementing coalition networks. Agreed funding models will offer options for determining responsibility for funding and resourcing arrangements. The shared resourcing[10] approach by the CCEB and MIC nations provides an efficient means to meet operational requirements for a permanent network.

ARCHITECTURE APPROACH

18. Effective and coherent design, development and management of coalition networks across all levels of command are vital to improving information exchange. The network architecture will

[9] MIC Coalition Building Guide

[10] Including common management, operator and technical training, logistics support, shared use of infrastructure and use of common equipment types.

guide the implementation of complementary, integrated and interoperable networks across MN organisational boundaries.

19. This Strategy proposes that a information sharing architecture should be developed to guide the design, implementation and support of future coalition networking initiatives. The architecture should be based on the DoD Architecture Framework (DoDAF), which includes All, Operational, Systems, and Technical Views.

20. The **"All Views"** summarizes the architecture, and uses a consolidated dictionary as an architecture development guide to enable a "common language" throughout the architectural effort. The **"Operational View"** will describe the tasks and activities, operational elements, and information flows required to accomplish or support the aim of coalition information exchange. The nature of the information exchanges will be specified in sufficient detail to determine required interoperability requirements. The **"System View"** will identify which required capabilities support the operational view requirements. The required degree of interoperability will be translated into a set of needed system capabilities. Current/postulated implementations will be compared with needed capabilities. It is a description, including graphics, of systems and interconnections providing for, or supporting, operational functions. The **"Technical View"** will reference the technical standards that apply to the architecture and how they need to be, or have been, implemented. It also defines emerging / future standards related to the architecture.

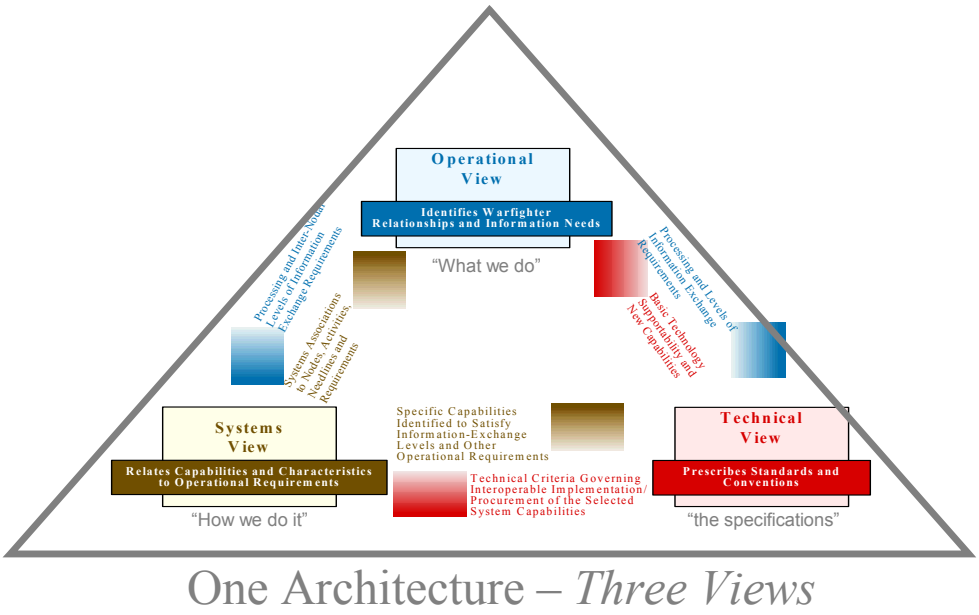


Figure 2.

21. The Architecture needs to be flexible enough to accommodate the introduction of new coalition partners and maintain congruence with accelerating technological advances. It should also continue to use MN initiatives and demonstrations - Joint Warrior Interoperability

Demonstration (JWID) and the Combined Federated BattleLabs Network (CFBLNet) - to examine potential 'quick-wins' through the continued cycle of experimentation, demonstration, and implementation. The security standards for coalition networks need to be developed and be continually reviewed in light of updates to the associated Threat Assessment.

22. One of the main benefits from adopting an architectural approach to coalition networking is to achieve increased commonality and reuse of design and development efforts. An additional important benefit is to guide further development and making more effective and efficient use of current MN information exchange capabilities.

23. To achieve these benefits, this Strategy proposes that participating nations and organisations should adopt a commonly-agreed architectural approach to MN information sharing with the primary mission of designing and implementing interoperable or complementary networks across all levels of command, and between different coalition groupings.

A TIERED COALITION NETWORKING CONCEPT

24. For users to be able to exchange information and collaboratively plan from their national C2 systems, the integrity of national information must be maintained by Boundary Protection Services (BPS). Currently, BPS are not available for all applications and services, and until such time as they are, two types of information exchange capabilities exist; ones with BPS and ones without. Until now, no model was available that described this current two state coalition networking environment.

25. The focus of effort for nations and organizations such as the CCEB should be to promote and encourage the development and accreditation of BPS for all relevant applications and services. Until a novel approach (that is one that does not require the use of duplicated guard infrastructure to separate domains) for the protection of national information appears, new capabilities will continue to be introduced which need their own specific BPS solution.

26. This Two-Tier model describes the initial coalition networking environment and provides a framework to evolve current capabilities, and guide future information sharing capability development. The model assumes that the ability to extend reach from the strategic to tactical/deployed environment is determined by the reach of national domains.

27. This model does not account for tactical networking between deployed elements (for example ships at sea operating as part of a MN Task Group) or between deployed Land Elements engaged in coalition operations. The work of the single Service Fora in developing multination tactical networks is complementary to other efforts that are the focus of this Strategy.

28. Tier 1 capabilities are those with BPS solutions and can be connected to national domains. Tier 2 capabilities are those that do not have BPS solutions and require additional separate infrastructure.

29. Both Tiers require the development of multinationally agreed domain policy, procedures and standards that include security and Computer Network Defence. Figures 3, 4 and 5 below show the conceptual Two-Tier model and the transition of capabilities from Tier 2 to Tier 1 towards an achievable end state.

30. The initial state (Figure 3) depicts the current situation where some applications (for example email with attachments) can be exchanged between nationally classified C2 systems with protection provided by nationally accredited BPS. However, no accredited BPS exist for other capabilities (for example collaborative planning tools and Web Services), so Tier 2 terminals are required.

31. In coalitions where the connection of national domains is not possible or desired, the provision of Tier 2 capabilities must be provided and maintained. Nations C and D depict a coalition partner who has no national C2 system or does not have the ability/willingness to connect their C2 system to that of another nation. They could also be coalition partners with whom Nation A and/or B need to exchange and share information, but who are unwilling to allow Nations C and D to interconnect (even via BPS) to their national classified C2 system.

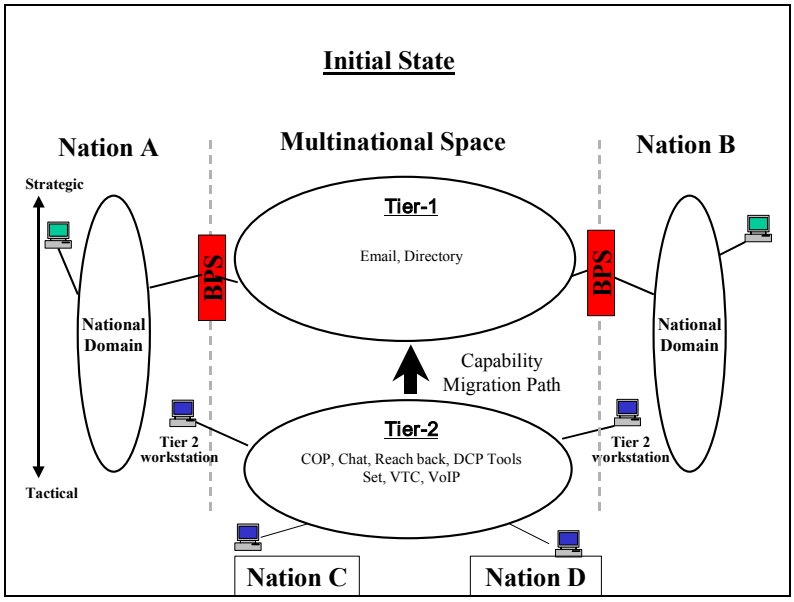


Figure 3.

32. The Transition State (Figure 4) depicts the situation where an increasing number and range of capabilities can be provided in a Tier 1 environment because of the increasing availability of accredited BPS. When specific capabilities (e.g. email, Web, COP, Chat, Reach Back) are available in both Tier 1 and Tier 2, meaning their full utility and reach are available to all required users at their national C2 workstation, there is unnecessary duplication. In this situation, those specific capabilities may be discontinued in Tier 2, unless information-sharing capabilities need to be maintained with Nations C and D in a Tier 2 environment.

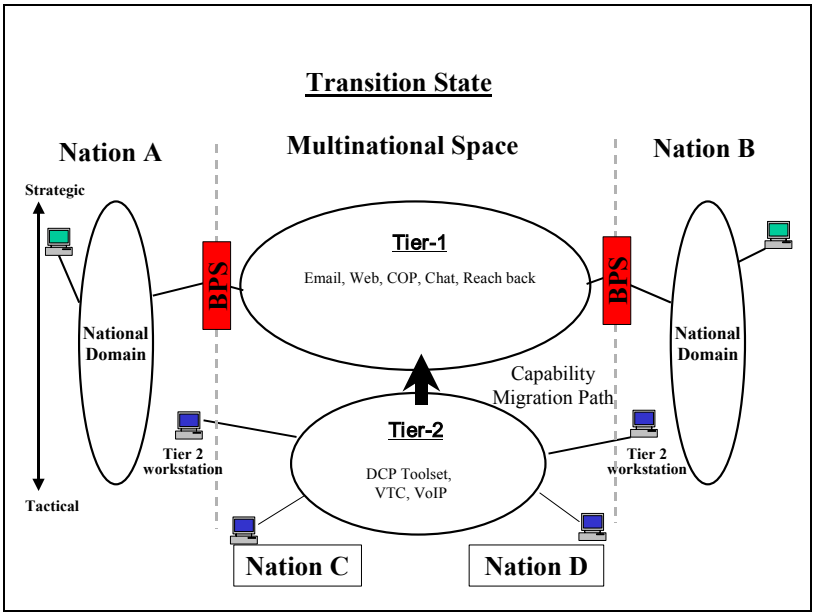


Figure 4.

33. The achievable End State (Figure 5) depicts the situation when all Tier 2 capabilities with their full utility and required reach are available on Tier 1 to users at their national C2 workstation. In this situation, information sharing capabilities may be required to be maintained with Nations C and D in a Tier 2 environment.

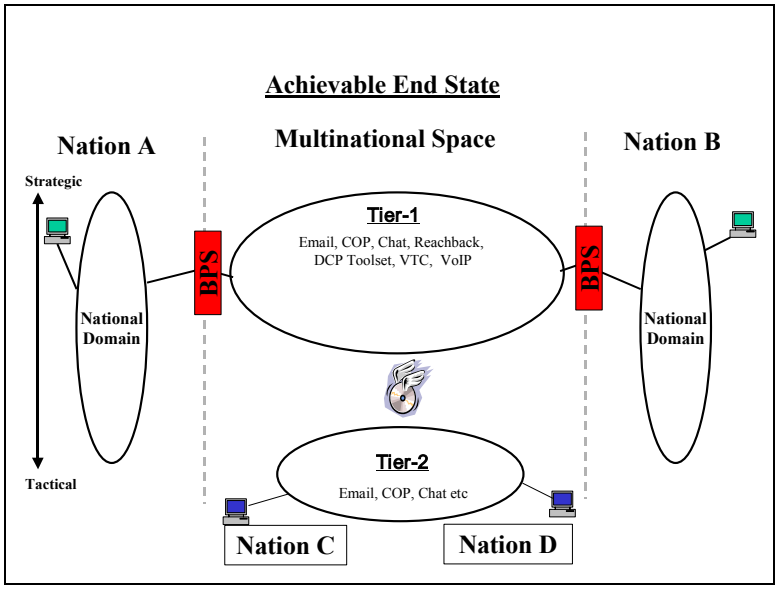


Figure 5.

TACTICAL NETWORKING AND INFORMATION EXCHANGE INITIATIVES

34. The ongoing activities within the Single Service Fora and other MN organisations to enhance tactical networking to support MN information exchange complement this strategy. Deployed coalition forces need the ability to directly exchange information without 'reaching back' through their national strategic networks. Therefore, tactical networks and interfaces that support the direct exchange of information between deployed Force Elements constitute an integral part of MN information sharing. Examples of initiatives in the tactical maritime and land environments should be considered in this Strategy.

35. The AUSCANNZUKUS Naval C4 Organisation is developing the Maritime Tactical Wide Area Network (MTWAN), which will extend Internet Protocol (IP) networking into the low bandwidth high latency tactical environment utilising existing commercial and military communications bearers. The MTWAN CONOPS and operating instructions are promulgated in ACP 200, Maritime Tactical Wide Area Networks.

36. The Multinational Interoperability Program (MIP) is enhancing international interoperability of Command and Control Information Systems (C2IS) at all levels from corps and below to support MN, combined and joint operations. MIP has developed a C2 Information Exchange Data Model and exchange mechanisms (the Message Exchange Mechanism and the Data Exchange Mechanism) to exchange information between co-operating C2 systems.

MIGRATION STRATEGY

37. The 2-Tier model will guide the rationalisation of current information sharing capabilities, but in the interim, emerging BPS solutions and associated security accreditation will govern the direction and timescales for achieving the End State.

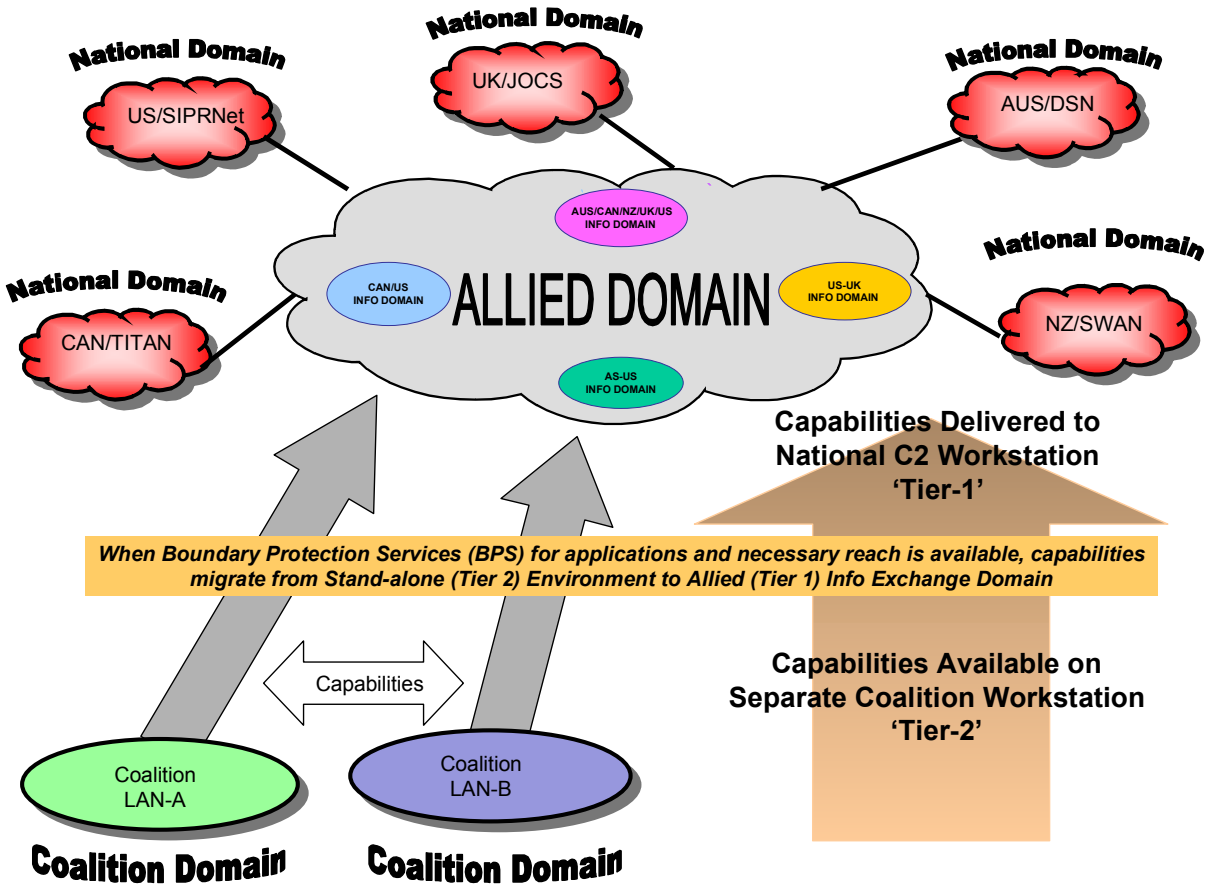


Figure 6. Coalition Networking Migration Model

38. To migrate Tier 2 capabilities to Tier 1 or develop new capabilities in Tier 1, rigorous acceptance criterion needs to be agreed and adhered to. An application, which is perceived to be suitable for collaborative planning, should first be demonstrated using the CFBLNet and JWID. Once the application has been fully tested, verified and accredited for use, it can then be implemented on operational systems. Ultimately, as Tier-1 capabilities become richer, the need for Tier-2 capabilities should reduce, and hence greater network convergence or elimination of duplicated capabilities can be achieved. CFBLNet should reflect accepted Tier 1 and Tier 2 capabilities.

39. Coalition environments that do not connect to national domains or do not have BPS solutions for specific capabilities will continue to be needed for information sharing. However, as BPS solutions for specific capabilities are developed and accredited, and where the full utility and reach is available to all required users, these capabilities will be able to migrate to a Tier 1 environment. Over time, the same capabilities will be available in both Tier 1 and Tier 2 environments, thus allowing reduction of Tier 2 infrastructure. Figure 7 illustrates a possible migration/convergence path for existing MN information sharing capabilities. Further details are at Annex G.

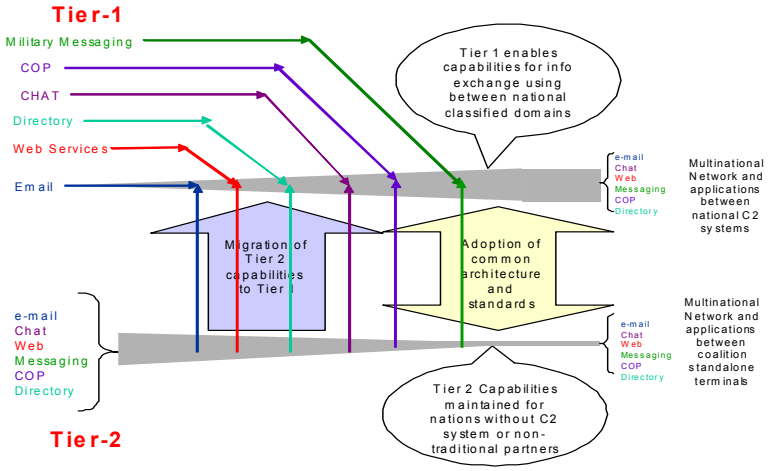


Figure 7. Illustrative Migration Path

PROPOSED NEXT & FUTURE TIER 1 SERVICES

40. Next and future services have been agreed and prioritised through the MIC as the users' requirements to support operational planning and conduct of operations[11]. The services outlined below are in the priority order identified by the MIC.

Next Services

41. Next Services are those applications where BPS solutions are being developed or accredited, and it is anticipated that they will be able to be used in the near to mid term (next 24 months). A brief overview of each capability is at Annex A, and indicative timeframes for implementation are at Annex B.

a. Initial Web Capability. This is the ability to share simple web page based information between Nations.

b. Directory Services. As the Tier 1 user community expands, the Directory Service will be enhanced.

c. Chat. Chat provides operators with an ability to hold real time or near real time informal discussions with other operational planners.

d. Basic Common Operating Picture (COP). A common and accurate view of the battlespace is essential to the conduct of coalition operation.

e. Military Messaging. Military Messaging is essential for the transfer of accurate, timely and non-repudiated information.

f. Reachback. Reachback will provide a capability for a nation to extend its national domain to remote, deployed or liaison national elements embedded within another nation.

[11] Multinational Combined Wide Area Network (CWAN), Concept of Operations (CONOPS), December 11, 2001

Future Services.

42. Future Services are those recognized as MIC requirements but where BPS solutions are not anticipated to be available for use in the near to mid term (after 24 months). Future services include but are not restricted to:

a. VTC (Video).

b. IP Telephony (Voice/Audio).

c. Whiteboarding.

d. Advanced Web services

e. Shared applications

f. Virtual Workspace Applications

g. Scrolling Bulletins

INFORMATION MANAGEMENT AND STANDARDISATION

43. The exponential growth of information availability and sources will require robust information management processes and procedures to ensure that the right information is available at the right time and in the desired format. To achieve full coalition information availability, coalition networking will need to address the challenges posed by the use of diverse data models and data exchange mechanisms that are currently being developed, are in use today, or are used in legacy systems. The data modelling initiatives and data exchange mechanisms being developed by the MIP should be considered by CCEB to improve data standardisation for MN information exchange.

44. Future coalition networking will also need to provide a resilient and responsive information repository, capable of being accessed through both fixed and deployed CIS to support the assembly, processing and transformation of a coherent set of information for improved Situational Awareness.

45. To ensure future alignment of new capabilities, ease migration to Tier-1 and to allow increased efficiencies, it is essential that agreed standards required for coalition interoperability and common architecture are adopted. The CCEB as Lead C4 Coordinator and the only MN Joint C4-focussed organisation is best placed to lead this work.

COALITION NETWORKING RESOURCE MODELLING

46. Adequate funding for the operation and support of coalition networking are essential pre-requisites to the successful implementation of such capabilities. In the MN environment, funding these capabilities may be primarily the responsibility of a Lead Nation, or may be shared between participating nations using a pre-agreed model. Regardless of what funding arrangements are implemented, it is imperative that nations allocate appropriate financial and manpower resources and align their budget timelines to deliver coherent Tier-1 and Tier-2 capabilities.

47. So far Griffin capabilities between the CCEB nations have been delivered using 'quick-wins' expenditure by some nations, but as a result of this 'fast tracking' approach, ongoing funding for the operation, future development and support of the Griffin capability is not necessarily included in each nation's long-term programme.

48. Current Tier-1 Griffin capabilities are being operated and supported using an equitable resource-sharing model between participating nations. This model could form the basis for resourcing other Tier-1 capabilities. Once the long-term budgets for Griffin are programmed, each nation will be responsible for the provision of necessary resources to establish and operate their portion of Griffin and to gain access to common components such as DISN.

49. Under the Lead Nation concept, a nation accepts responsibility for providing, managing and supporting the majority of equipment, applications and services required for information exchange among coalition partners. The CENTRIXS construct is an example where the US, as the CENTRIXS sponsor, is shouldering the burden for developing, fielding, managing and maintaining this capability.

50. Annex C details the rough order of costs spent on current Tier-1 and Tier-2 capabilities by each nation, coupled with an outline estimate of future costs to meet the Next and Futures Services detailed in this paper.

51. The following three funding models were investigated:

- Option A, resources (funding) from each participating nation pooled in a central area, and then used to acquire coalition information sharing capabilities.
- Option B, provision of resources (capability) divided or shared amongst participating nations on a *quid-pro-quo* basis.
- Option C, the Lead Nation provides and funds the coalition network infrastructure, applications, services and management, with participating nations providing some national infrastructure and paying access charges.

Recommendations

52. Option A could potentially be a future solution if an appropriate funding mechanism can be developed. Option B has been implemented successfully by CCEB nations but requires continued equitable sharing, and is recommended for allied domains. Option C has been implemented for some ad hoc networks.

WAY AHEAD

53. The establishment of coalition networking will be aided by the adoption of the proposed 2 Tier model to provide a framework for the development and evolution of existing and future capabilities in a coordinated, focused and planned manner. The adoption of a coalition networking architecture will ensure a structured approach and common design when both Tier 1 and Tier 2 capabilities are established. The adoption of standard Tier 1 and Tier 2 solutions will lead to cost efficiencies by minimising development, training, maintenance, and support overheads. The standardisation of Tier 1 and Tier 2 solutions requires the development of complimentary information management and security policies and procedures.

54. The CCEB, as the recognised body for coordinating C4 interoperability between the nations, will lead the development, consolidation and evolution of both Tier 1 and Tier 2 solutions. The CCEB will assist in the coordination, rationalisation or convergence (as appropriate) of existing Griffin, CENTRIXS, AUSCANNZUKUS MTWAN, MIP and other relevant initiatives. It will lead or co-ordinate efforts to ensure that the standards used for fielded systems are incorporated into the development of Tier 1 and Tier 2 capabilities. The development and evolution of solutions must address design, technology, support and management aspects to ensure the deployment of an effective capability. Nations will need to scope the level of effort required and resource these requirements through appropriate national programs and agreed cost sharing model.

CONCLUSIONS

55. A number of diverse coalition networking environments have been developed either by individual nations or collaboratively, to meet different needs. There are two key current coalition networking capabilities. CENTRIXS provides a rich set of information sharing capabilities within a domain at the operational and tactical levels of warfighting. Griffin is a permanent multinationally-developed, accredited and supported capability that permits information sharing capabilities between national domains. CENTRIXS and Griffin are complementary (not competing) capabilities that allow coalition warfighters to share information across all levels of command.

56. This strategy lays the foundation to meet all the MIC functional requirements. It provides a means to harmonize and rationalize the approaches to MN information exchange and provides a supportable way forward. The coalition networking architecture approach facilitates integration and interoperability across Joint and multi-national organizational boundaries. Consequently, the nations participating in coalition networking initiatives need to adopt an architectural approach, based on the US DoDAF, to ensure that future capabilities are designed and developed in a coherent and common fashion, resulting in the more effective and efficient information sharing.

57. The desired solution for allied and coalition information sharing and collaborative planning is between national domains, with the integrity of national information being maintained by Boundary Protection Services. The 2-Tier model describes the coalition networking environment and provides a model to develop and evolve current and future capabilities. Tier 1 capabilities are those with BPS solutions that can be connected to national domains. Tier 2 capabilities are those that do not have BPS solutions and therefore require additional separate infrastructure. The 2-Tier model will guide the rationalization, convergence or migration of

current information sharing capabilities, but in the interim, emerging BPS solutions and associated security accreditation will govern the direction and timescales for achieving the End State.

58. New capabilities have been agreed and prioritized through the MIC to support operational planning and conduct of operations. The implementation of coalition information sharing capabilities based on the Coalition Networking Strategy, combined with allocation of appropriate resources from each nation, will assure the success of information sharing in any type of operation.

Annexes:

A. Overview – Applications and Services
B. Timelines for Improved Coalition Networking
C. CIS Resources

OVERVIEW – APPLICATIONS AND SERVICES

1. WEB CAPABILITY

After email with attachments, web service is the most sought after capability desired for Griffin. However, web service may also be the most difficult to implement. The http protocol is one of the most powerful protocols in the TCP/IP suite and also presents some of the most critical and persistent vulnerabilities. As such, any automated web service must pass intense national accreditation criteria. Initial user defined capabilities that a Griffin web implementation must provide have been agreed and categorised as essential and highly desirable. A multinational virtual web design has been agreed in principle and nations are designing their interface specifications that meet those criteria.

Time lines. Web services have been tested on CFBLNet and are being trialed bilaterally. IOC is 2004.

2. DIRECTORY SERVICES

Directory Services is defined as a set of distributed information bases that support the exchange of agreed identity management information (such as contact details, PKI certificates, gateway/device information etc), and is based upon internationally agreed standards that enable information sharing between Nations. Directory Services adopt architecture, protocols, schema, policies, and procedures that support combined and joint operations in the strategic and tactical environments.

The Directory Service is being developed in three migratory phases. An Initial phase was implemented to provide limited access to contact information during the informal messaging development. The Interim phase is intended to provide a fully supported and managed Directory Service for informal messaging. The Enhanced phase is planned to support military messaging on Griffin.

Initial Directory Services

- The Initial Directory Service is being facilitated by the ad-hoc exchange of text files between the Griffin Nations.

Interim Directory Services

- The Interim DS protocols are based on the use of LDIF attachments, transferred over the informal messaging service, with additional control information.

Enhanced Directory Services

- The Enhanced Directory Service provide support for the Griffin Military Messaging service. It will be based on the Interim DS use of LDIF Attachments, with an extended and use ACP 145 protocols to assure authentication and integrity.

Time lines

- Initial Directory Services - In Service
- Interim Directory Services - IOC 2004)
- Enhanced Directory Services - IOC after national implementation of Military Messaging.

3. CHAT

An initial CHAT capability will support near-real-time one to one chat sessions. Although the initial service will not facilitate multi-chat sessions (chat-room facility) it will add a near real time dimension to augment the current email plus attachment capability.

Timeline CHAT services have been tested on CFBLNet and are being trialed bilaterally during 2004. Planned IOC is by EOY 2004.

4. COMMON OPERATIONAL PICTURE

The ability of warfighters to collaboratively plan and conduct successful operations is largely dependent on them having a common situational awareness of the environment in which they are operating – this can be at the strategic, operational or tactical levels of command. Operational planners and joint and coalition warfighting commanders now have the ability to review and share information and intelligence on their adversary.

A Common Operational Picture (COP) may provide real-time, near real-time and non real-time situational awareness of the adversary, along with an awareness of location and status of own forces. Depending on the purpose of the COP and its access to other information, a wide range of supporting information may be displayed on the COP to improve the situational awareness of the user.

Timeline IOC in 2006.

5. MILITARY MESSAGING

The CCEB has developed a solution that enables interoperability between each CCEB nation's ACP123 (X.400) high-grade military messaging systems. The solution[12] is based on messaging Gateways between those national ACP123 systems being rolled out between now and Dec 05. It has been agreed that Griffin will be used to provide transport services for exchanging military messaging between CCEB nations.

For non-Tier 1 nations with ACP123/145 capabilities, exchange of messages could be achieved across a separate domain on Griffin with appropriate BPS to allow transfer between domains or

[12] The CCEB issued a draft Allied Comms Publication (ACP) 145 on 1 May 03 that defines the standards to be used for interoperable military messaging between nations. The standard is based on gateways using X.400 P.772, with S/MIME & ESS labels for security. PKI is used to provide authentication and integrity security services between the gateways. France, Germany, and NATO are involved in ACP 145 development through the Multinational Interoperability Council (MIC) and are likely to incorporate this standard in their future military messaging programmes.

via Tier 2 environment. Nations outside of the Allied or coalition domains can still achieve formal military messaging requirements using ACP123 or legacy ACP127/128 systems.

Timeline. IOC – 2005 (defined as 2 nations exchanging military messages on Griffin).

6. REACHBACK

Reachback is a cost-effective solution to provide connectivity for a deployed/remote user to access information on his national network. Reachback utilises existing wide area network (WAN) infrastructure within and between nations to extend national connectivity to remote, deployed or liaison elements embedded/located within another nation. Depending on how the capability is implemented, Reachback enables a remote user to access either national Eyes-Only information or coalition releasable information residing on his national/home classified network.

The primary benefits Reachback offer are the ability for deployed/remote users to access information on their national classified system using existing multinational WAN connectivity between nations. This means that separate rear-link circuits do not need to be established with resultant improved efficiencies and potentially greater data transfer rates.

National Eyes-Only Reachback enables a remote/deployed user to access “eyes-only” information and services on their national classified network. Establishment of a “National Eyes-Only” Domain within another nation’s space may be constrained by security and national policies of the Host Nation and of the visiting nation.

Coalition Releasable Reachback enables a deployed/remote user, operating within a another nation’s facility, to use “coalition releasable” equipment to exchange information with other coalition nations; this includes the Host and Parent Nation, as well as other partners participating in the coalition and connected to the coalition domain.

Timeline. From a technical perspective, Reachback can be implemented relatively easily and in the near future. However, national security policies and user requirements will dictate implementation schedules.

ANNEX B TO
COALITION
NETWORKING STRATEGY

TIMELINES FOR IMPROVED COALITION NETWORKING

1. The current Griffin Tier-1 Program as envisaged under the original MIC requirement remains a legitimate plan. A CCEB Griffin domain with e-mail + attachments has been created, enhanced directory services are to be implemented by 1Q04, and initial web services will be in-service in 2Q04. The establishment of a MIC Griffin domain is being progressed and the necessary multinational info exchange agreements are being negotiated. As we progress from Mar 04, it will be essential that JWID and CFBLNet are fully engaged and utilised to ensure the necessary guard technology that are now available in the commercial market are accredited and available for military applications. Figure 1 shows an outline of the forecast timelines for enriching the CCEB Griffin Tier-1 capability, while Table 1 provides similar information on current and future capabilities in matrix format.

Application	Current		Next		Future	
	Tier-1	Tier-2	Tier-1	Tier-2	Tier-1	Tier-2
Email with Attachments	Yes	Yes	Yes	Yes	Yes	Yes
Initial Web Capability	No	Yes	Yes	Yes	Yes	Yes
Enhanced Directory Services	No	No	Yes	Yes	Yes	Yes
Chat	No	Yes	Yes	Yes	Yes	Yes
CROP	No	Yes	No	Yes	Yes	Yes
Military Messaging	No	No	Yes	No	Yes	No
Reachback	No	No	Yes	No	Yes	No
VTC	No	No	No	No	Yes	No
Voice over IP	No	No	No	No	Yes	No
Whiteboarding	No	Yes	No	Yes	Yes	Yes

Table 1. Matrix of Current, Next & Future Capabilities

ANNEX C TO
COALITION
NETWORKING STRATEGY

CIS RESOURCES

Copy held by Chair WS / CCEB PermSec